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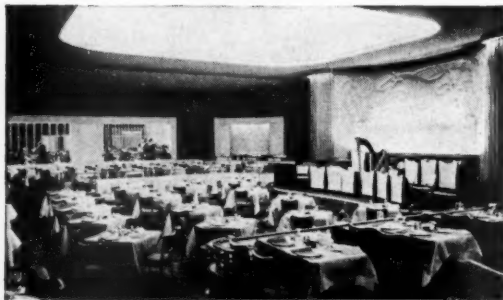
*"Where Food is Finest
..IT'S COOKED WITH GAS"*

**Chef at Detroit's Statler
says "Gas... brings all
the chef's skill to the
customer's table"**



Mr. J. C. Meacham, Manager, Detroit Statler, and Chef Fausone

The Terrace Room



THE TREND IS TO GAS

FOR ALL
COMMERCIAL COOKING



The Detroit Statler

At Detroit's important Statler, where nearly two million meals a year are cooked with Gas, Mr. Joe Fausone, Chef, says:

"We have confidence in Gas. Its flexibility and instant response brings all of the chef's skill in food preparation through the cooking period to service at the customer's table. And of course we use the low, even heat possible with Gas to roast meats evenly with minimum shrinkage, and the high, live heat of Gas to broil steaks and chops to greatest flavor and eye-appeal. Our Gas equipped bake shop prepares all of the rolls, fancy breads, and pastries used in our restaurants daily."

The Gas equipment to do this big job includes 17 sections of ranges, 5 heavy duty broilers, 5 salamander broilers, 2 roasting ovens, 3 fryers, 2 automatic toasters, 4 bake ovens and 1 large peel oven. Truly wherever fine food is served, you will find it's cooked with Gas and the Commercial Representative of your local Gas Company is always ready to assist you with any kitchen equipment problem.

AMERICAN GAS ASSOCIATION

420 LEXINGTON AVENUE, NEW YORK 17, N.Y.



The natural gas convention gets top billing in this issue and four of the feature articles stem from it. Being the first postwar meeting of an expanding industry, it is not surprising that it attracted wide attention. . . . Perhaps most interest centered upon Mr. Keith's report on the background and description of the giant new plant being built at Brownsville, Texas, to convert natural gas to gasoline. This well-known engineer foresees many new horizons open to the gas industry such as production of a synthetic "natural" gas at the coal mine and many other possibilities. . . . Naturally, with the F.P.C. investigation in the spotlight, federal and state regulatory practices came in for extended discussion. While Messrs. Buddrus and Poe made able summaries of the gas industry's position, the full story can only be told after the Washington hearing when the final chapter will be written. For a running commentary on trends in court decisions, Mr. Dougherty's paper is excellent and contains authoritative information. . . . That other major bugaboo, labor, was the subject of a keen analysis by A. G. A. Committee Chairman Rauch. He strikes to the heart of the problem with some plain talk. . . . See the Natural Gas Proceedings for all convention papers.

EDITORIAL OFFICES:
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JAMES M. BEALL, *Editor*

Natural Gas Conference

WITH its great war record a matter of history, the natural gas industry at its forty-first annual meeting in Cincinnati, Ohio, May 7 and 8, posted another milestone and cleared the decks for resumption of its phenomenal pre-war progress. Emphasis was on research, promotion and establishment of an enlightened regulatory policy.

More than 500 delegates from the far-flung natural gas territory participated in the Spring meeting sponsored by the Natural Gas Department of the American Gas Association. R. H. Hargrove, chairman of the department, and vice-president and general manager, United Gas Pipe Line Co., Shreveport, presided at the general sessions.

Other sessions were held as follows: Transmission Committee—H. J. Carson, vice-president, Northern Natural Gas Co., Omaha, chairman; Production and Storage Committee—L. T. Potter, superintendent of production, Lone Star Gas Co., Dallas, chairman; Accounting Committee—Leith V. Watkins, secretary-controller, Panhandle Eastern Pipe Line Co., Chicago, chairman.

The outstanding program was the work of a committee headed by Walter C. Beckjord, president, Cincinnati Gas and Electric Company, and a past A. G. A. president. The visitors were welcomed to Cincinnati by Mayor James G. Stewart whose eloquent account of the city's colorful history was a conference highlight.

Natural gas is the fuel of the future, Chairman Hargrove told his audience in his opening remarks. This industry, he said, now serves 41 million people in 33 states with a network of 218,000 miles of trunk pipelines and mains with a total production of three and one-half trillion cubic feet and a market value of 750 million dollars. It has advanced from 38 to 48 per cent in the numbers of customers served by the whole gas industry. Further, he continued, a recent statistical analysis of 116 natural gas companies showed total assets of more than three billion dollars.

As to the Federal Power Commission's investigation of the natural gas industry, which occupied considerable attention at the meeting, Mr. Hargrove said: "We are contributing liberally of manpower and money in this investigation toward a solution of the problems of control. We are hopeful that out of it will come better regulation, efficiently administered, and that our industry and its problems will be better understood by the public and its regulatory officials."

Later in the first general session, E. Buddrus, chairman of the Industry Committee and president, Panhandle Eastern Pipe Line Co., Chicago, and E. Holley Poe, whose firm is preparing the natural industry's presentation for the F.P.C. Washington hearing, reviewed the progress of the hearings to date and set forth the industry's position in clear-cut terms. This session also included an able review of recent court and commission decisions affecting the natural gas industry, presented by William A. Dougherty, general counsel, Consolidated Natural Gas Co., New York, which is published in full in this issue.

The Association's president, Everett J. Boothby, who is vice-president and general manager, Washington Gas Light Co., called for even greater unity of thinking and action within the industry than has been attained thus far. "The A. G. A.," he declared, "is the rallying point of the industry for plans, programs and coordinated action. It must be kept strong; it must be continually strengthened." He also advocated continued attention to conservation, pointing out that "withdrawals of natural gas must be on an orderly, well coordinated and economic basis."

Trends in industrial relations were analyzed in an address by Fred R. Rauch, manager, industrial relations, Cincinnati Gas and Electric Co., and chairman, A. G. A. Personnel Committee. After tracing briefly the rise of unionism, Mr. Rauch gave his views of the fundamental requirements of

• Opposite: Like sentries on the horizon, these large towers in a natural gas absorption plant stand out by day or by night. Located in the Saxet oil field, Nueces County, Texas, in the center of a great natural gas area. (Ewing Galloway Photo)

good labor relations, which he summed up in one word: Fairness. His timely presentation appears on subsequent pages.

Of special interest at this first session was an illustrated talk on gas turbines by J. Kenneth Salisbury of the General Electric Co., Schenectady. The developments and possibilities of this type of power plant, including descriptions of jet-propelled aircraft, held the attention of his audience.

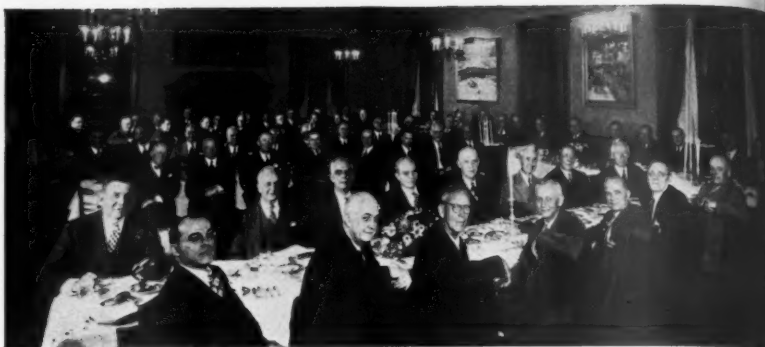
Leading off the Wednesday general session, H. Carl Wolf, managing director, American Gas Association, told how the rugged individualism of natural gas pioneers has now been combined with a teamwork which will carry the industry to new heights. With a real ball to carry, a vital natural resource, this team he said, has a promotional and research plan and unmatched vitality which make it an unbeatable combination. "Gas," he said, "is the spirit of the future."

Research Accelerated

Research projects which were held in abeyance during the war are now going forward at an accelerated pace, H. D. Hancock, chairman, Technical and Research Committee, and president, Gas Advisers, Inc., New York, told the conference. He outlined briefly activities being conducted or planned by the Gas Well Deliveries, Pipeline and Gas Measurement Subcommittees, and referred also to the mixed gas research project and research on storage of gas as hydrate.

The Bureau of Mines, Mr. Hancock reported, has resumed work on the pipeline hydrate investigation after a four-year lapse during the war period. A paper by W. M. Deaton and E. M. Frost, Jr., of the Bureau's staff, presented at the Transmission Committee meeting by Mr. Deaton, gave the results of an investigation of the ratio of gas to water in the hydrate molecule and the equilibrium for methane, ethane and propane hydrates at temperatures below 32 degrees F. Publication in the latter part of 1946 in a single volume of all of the data obtained since the hydrate investigation began in 1935 is planned, Mr. Hancock said. Further investigations relating to gas flows in pipe lines are also contemplated.

Mr. Hancock introduced E. L. Raw-



Dinner meeting of the Managing and Advisory Committees of the Natural Gas Department, held May 7 at the Queen City Club, Cincinnati, during the Natural Gas Spring Meeting. Many invited guests were present as well as members of the committees



D. A. Hulcy, chairman, A. G. A. Promotional Committee and president, Lone Star Gas Company, Dallas, Texas; R. H. Hargrove, chairman, A. G. A. Natural Gas Department and vice-president and general manager, United Gas Pipeline Co., Shreveport, La.; and R. W. Hendee, president, Colorado Interstate Gas Co., Colorado Springs, Colorado

lins, chairman, Gas Well Deliveries Subcommittee, who described the field-testing program with portable equipment. He referred to the development of the windowed cell for observing hydrocarbon phases under variable pressures, which was presented at the Production and Storage Committee meeting by Kenneth Eilerts, U. S. Bureau of Mines, Bartlesville. Mr. Eilerts' complete report will be published in the A. G. A. MONTHLY at a later date.

High spots of the gas industry's stepped-up promotional program were covered in eloquent fashion by D. A. Hulcy, chairman, Promotional Committee, and president, Lone Star Gas Co., Dallas, Texas. Besides originating its own programs, such as a speakers' bureau, the newly organized A. G. A.

Promotional Bureau will "weld into a compact, hard-hitting force, the efforts of the various units of the Association, the manufacturers, the utilities and allied industries," he said.

Developments affecting the fuel economy of the nation were described by P. C. Keith, president, Hydrocarbon Research, Inc., New York, in an address on "Gasoline from Natural Gas." While primarily a discussion of the 15 million dollar plant being built at Brownsville, Texas, to convert gas to gasoline, Mr. Keith made startling predictions of future possibilities in the gas, oil and coal fields, if present known processes are developed fully. His stimulating paper is reproduced in this issue.

Presenting a progress report of the Natural Gas Reserves Committee, Lyon



Mayor James G. Stewart of Cincinnati and Walter C. Beckjord, president, Cincinnati Gas and Electric Co., and A. G. A. past president



Davis M. DeBard, Stone and Webster Service Corp., New York; E. J. Boothby, A. G. A. president, and vice-president and general manager, Washington Gas Light Co.; and H. N. Mallon, president, Dresser Industries Inc., Cleveland



H. J. Carson, chairman, A. G. A. Transmission Committee and vice-president, Northern Natural Gas Co., Omaha, Nebr.



Kenneth Eilerts, U. S. Bureau of Mines; L. T. Potter, Lone Star Gas Co., Dallas; Marion L. Fort, Pacific Lighting Corp., Los Angeles



E. Buddrus, Chairman, Industry Committee; president, Panhandle Eastern Pipeline Company, Chicago, Illinois



William A. Dougherty, Standard Oil Co. of New Jersey, New York and F. M. Banks, Southern California Gas Co., Los Angeles

F. Terry, vice-chairman of the committee, and second vice-president, Chase National Bank, New York, stated that if natural gas reserves of the United States were measured in terms of heat units, they would be as large and probably greater than known reserves of petroleum. He said that the first nationwide estimate of natural gas reserves probably would be completed this summer and an initial report made at the A. G. A. annual convention in October.

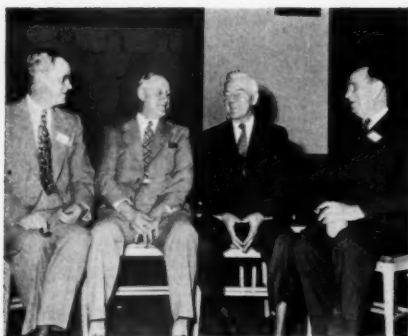
Captain E. S. Pettyjohn, U.S.N.R., who will become director of the Institute of Gas Technology as soon as he is released by the Navy, spoke on the German use of natural gas. Small deposits of natural gas located north of the Ruhr, he said, were not sufficient for use as a fuel but had been utilized



H. D. Hancock, chairman, A. G. A. Technical & Research Committee, president, Gas Advisers Inc., New York and R. G. Griswold, president, Electric Advisers Inc., New York



Colonel Maurice W. Walsh, the only surviving charter member of the old Natural Gas Association of America, who has never missed a natural gas convention



Fred W. Peters, Oklahoma Natural Gas Co.; L. L. Dyer, Lone Star Gas Co.; Leib V. Watkins, Panhandle Eastern Pipeline Company and chairman, Accounting Committee, A. G. A. Natural Gas Dept.; F. L. Blackburn, Gas Advisers Inc.



Frank S. Kelly, Jr., Arkansas-Louisiana Gas Company, Shreveport; Frank C. Smith, Houston Natural Gas Corp., Houston; L. L. Dyer, Lone Star Gas Company, Dallas; Chester L. May, Lone Star Gas Company, Dallas



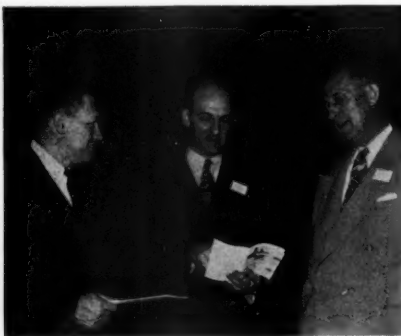
Clifford Johnstone, managing director, Pacific Coast Gas Association; H. L. Farrar, Coast Counties Gas & Electric Co.; J. S. Moulten, Pacific Gas & Electric Co.; F. T. Parks, Public Service Co. of Colorado



Dorr P. Hartson, Equitable Gas Co., Pittsburgh, (chairman, A. G. A. Committee on National Advertising); G. W. Harr, Monongahela Power Co., and A. C. Perry, Peoples Natural Gas Company, Pittsburgh



Morton McKean, American Meter Co.; Hugh H. Cuthrell, The Brooklyn Union Gas Company; E. P. Noppel, Ebasco Services Inc., New York; B. Newball, Philadelphia Gas Works Co.; A. H. Stack, Tampa Gas Company



A. W. Lundstrum, United Gas Pipeline Company, Shreveport; E. W. Kramer, Ebasco Services Inc., New York; and R. C. Broach, Atlanta Gas Light Company, Macon, Georgia

as a raw material. With the aid of slides, Captain Pettyjohn gave a valuable detailed description, illustrated with slides, of a German plant which makes acetylene from natural gas.

Installation and maintenance of LP

gas plants by natural gas transmission and distributing companies to provide augmented or auxiliary and standby fuel for emergencies was discussed by Francis E. Drake, Pacific Gas Corporation, New York, in the concluding general

session paper. He said the use of LP gas is particularly advantageous in "shaving peaks" during periods of heavy loads on pipelines and in maintaining service to consumers during line breaks or cutoffs.

"LP gas can be substituted for natural gas without a burner or shutter change by the simple expedient of adding a few extra B.t.u.'s," he pointed out, "and installations can be arranged that without human hand they automatically and positively will come into service instantly when a predetermined low point in pressure is reached in the transmission or distributing system."

Cost of installation and operating LP gas auxiliary plants as small, he said, and, in view of the economical benefits to be gained in effecting more uniform flow of natural gas through lines and maintaining service during emergencies, are more than justified. Mr. Drake also advocated the adoption of the B.t.u. value of a gas instead of volume as a basis for gas rates.

Transmission Committee Sessions

The Transmission Committee under Chairman Carson held afternoon meetings Tuesday and Wednesday. Papers presented at the first meeting included that on "Gas Hydrate Composition and Equilibrium Data" by Messrs. Deaton and Frost, mentioned previously, and a description of solid adsorption-type natural gas dehydration plants by Carl V. Spangler, J. F. Pritchard and Co., Pittsburgh. A colored film of the construction of the Tennessee Gas and Transmission Company's pipe line system from Corpus Christi, Texas, to West Virginia was the concluding feature.

At the Wednesday meeting, C. S. Worley, Consolidated Gas Utilities Corp., Oklahoma City, spoke on "Field Compressing Stations," and Warren T. Bulla, superintendent, communications and dispatching, described radiotelephone systems and the allotment of radio frequencies. Mr. Bulla outlined the gas industry's work with the Radio Technical Planning Board as well as the proposed new Rules Governing Stations in the Utility Service. He urged the desirability of having the American Gas Association establish national and regional committees for the purpose of coordinating activities within the power and petroleum group and to be of serv-

ice to the Federal Communications Commission.

The transmission meeting ended with a colored film showing the construction of the Canol Line. Both sessions were well attended.

The Production and Storage Committee meeting, with Chairman Potter presiding, explored a number of topics of interest to natural gas operating men. Mr. Eilerts opened the program with a description of the windowed cell developed by the U. S. Bureau of Mines to obtain data on gas condensate systems. Corrosion of equipment in high pressure gas wells came up for attention next when a paper prepared by T. S. Bacon, research engineer, Lone Star Gas Co., Dallas, was read by Mr. Potter in the absence of the author.

Addition of a corrective chemical or the addition of an inhibitor was recommended by Mr. Bacon as the most desirable method of reducing corrosive effects on high pressure natural gas well equipment. "The use of inhibitors is a logical solution of the problem for completed wells while the most desirable solution for new construction appears to be the use of corrosion-resisting alloys," he said. Stainless steels, of the 18 per cent chromium, 8 per cent nickel class, have been used as valve liners, sampling lines, etc., and offer greater resistance to this corrosion than ordinary steel equipment, he added.

The remainder of this session was devoted to a discussion of storage problems. Describing the Goleta project, Marion L. Fort, superintendent of operations, Pacific Lighting Corp., Los An-

geles, said their present storage program calls for the injection and withdrawal of approximately 10 million M. cubic feet of gas per year. Citing plans for expansion, however, he estimated that in the near future both well deliverability and pipeline capacity would be increased to as much as 300,000 M cubic feet per day.

Winding up this session, J. H. Isherwood, vice-president and general manager, North Penn Gas Co., Port Allegheny, Pa., described the storage situa-

tion in the Appalachian area. He predicted a large increase in the demand for gas and said it is evident that the area would require "tremendous underground storage facilities to take care of peak days."

While no formal papers were presented at the Accounting Committee meeting which Chairman Watkins conducted, a lively round-table discussion of natural gas problems brought out much useful information.

A. G. A. Aids Government in Fuel Crisis

AS a result of the fuel emergency created by the bituminous coal strike, the Office for Emergency Controls of the Civilian Production Administration at Washington, on May 9 issued Utilities Order U-12 to all manufactured and mixed gas utilities establishing policies for emergency curtailment of gas service. The order set up curtailment measures to be applied in successive stages if a utility's supplies of coal and coke were less than enough required for a three weeks' maintenance of normal gas service.

The C.P.A., in an accompanying directive signed by Edward Falck, also urged the gas companies to initiate a vigorous press and radio campaign for voluntary conservation of gas.

Previously, on April 30, Solid Fuels Administrator J. A. Krug, in a letter to the American Gas Association, had requested manufactured gas companies to adopt the use of substitute fuels in order to keep gas plants in operation. The Solid Fuels Administration in May issued an order setting up priorities for the delivery of bituminous coal to utilities in such a manner as to build up a twenty-day supply for every gas company by May 31.

Anticipating the situation, the American

Gas Association's Statistical Bureau had been working for some weeks prior to the strike gathering current information on the gas companies' coal and coke stocks. Consequently, when the crisis came, the A. G. A. was able to supply a comprehensive picture of individual company and industry-wide fuel conditions which was of material aid to the government bureaus as well as to member companies. While some companies went directly to the Solid Fuels Administration with their problems, many others, notably smaller ones, relied upon the A. G. A. to furnish the government agencies with information on their situation.

As a matter of fact, a running tabulation of fuel stock forms was kept daily by the A. G. A. Statistical Bureau and summaries were furnished to the federal agencies showing the number of reporting companies with varying days of fuel supplies on hand. Letters to gas companies kept them constantly informed of latest developments, and asked their full cooperation in conserving gas.

The A. G. A. staff is continuing to keep in close touch with Washington agencies in order to give the gas industry any additional information which seems urgently needed.



R. M. Conner, director, A. G. A. Testing Laboratories; F. C. Adams, president, Surface Construction Corp., Toledo; and A. F. Bridge, vice-president, Southern Counties Gas Co., Los Angeles (past president, A. G. A.)



A. C. Perry, Pittsburgh; L. L. Tomkin, Hope Natural Gas Co.; H. C. Cooper, Sewickley, Pa. (past chairman, Technical and Research Committee); J. French Robinson, The East Ohio Gas Co., (past president, A. G. A.)



Lyle C. Harvey, president, Gas Appliance Manufacturers Association and president, Bryant Heater Co., Cleveland, and C. E. Bennett, The Manufacturers Light & Heat Company, Pittsburgh

Record-Breaking Gas Convention and Appliance Exhibition Anticipated



Irving K. Peck

ager, The Manufacturers Light and Heat Company, Pittsburgh, Pa.

Simultaneously, the Gas Appliance Manufacturers Association anticipates a record-breaking exhibition of gas appliances and equipment at the Atlantic City Auditorium, the first exhibit since the World's Fair and since the war. As of May 20, ninety-five per cent of the space sold at the last exhibition in Atlantic City had been contracted for. Through a rearrangement of the arena floor,

PLANS for a record-breaking attendance at the annual convention of the American Gas Association during the week of October 7 with a registration of 10,000, are being formulated by the Association's Convention Committee under the chairmanship of Irving K. Peck, vice-president and general man-

approximately 20,000 square feet more space is available than at other exhibitions.

Everett J. Boothby, president of A. G. A., recently addressed all members of the Association, urging action in making hotel reservations for the Annual Convention and Exhibit in Atlantic City and upwards of 3,000 registrations have been received. Members again are urged to make hotel reservations at once and to share twin-bedded rooms as much as possible. Applications for hotel rooms should be made on the blank which accompanied Mr. Boothby's letter and the blank sent to the Housing Bureau at Atlantic City and not to the American Gas Association. In view of the huge registration that is expected, early requests will help the Association, the Housing Bureau and the hotels give better assurance of satisfactory accommodations.

The Convention Committee has arranged a tentative program that promises to hold interest for every member of the gas industry attending the conference, with a special discussion on the woman's viewpoint on gas and gas appliances for the ladies. The outline of the program, which is subject to minor changes, is as follows:

Monday, 10:00 A.M., Natural Gas Department meeting at the Hotel Claridge. At 2:00 P.M. an Employee Relations Forum will be held in the Grand Ball Room of the Atlantic City Auditorium. The first of the General Sessions will open at 10:00 A.M. on Tuesday in the Grand Ball Room. The Industrial and Commercial Gas Section will have a luncheon meeting and an afternoon conference at the Hotel Traymore on Tuesday. Other afternoon meetings scheduled for that day include: Accounting Section, Ritz-Carlton, 2:00 P.M.; Technical Section, Ambassador Hotel, 2:00 P.M.; and Home Service Committee, 2:00 P.M. at the Hotel Claridge.

On Wednesday, the Home Service Committee will serve its annual breakfast at the Hotel Traymore at 8:00 A.M. The Residential Gas Section will meet in the Ballroom of the Auditorium at 10:00 A.M. and the Technical Section will meet at the same hour at the Ambassador. There will be an evening session on Wednesday at the Grand Ball Room of the Auditorium with a top-flight speaker. The annual awards of the A. G. A. will be made at this evening session.

The second General Session will be opened at 10:00 A.M. on Thursday in the Grand Ball Room of the Auditorium. At 2:00 P.M. the Residential Gas Section will meet in the Auditorium; while the Industrial and Commercial Gas Section meets at 2:00 P.M. at the Traymore; the Accounting Section at the same hour at the Ritz-Carlton and the Technical Section at the Ambassador at 2:00 P.M. Thursday.

The plans include two evenings or more of dance and entertainment and will allow for plenty of time to visit the exhibit which promises to exceed all previous records.

The Convention Committee is sparing no effort to make the 1946 Convention outstanding in every respect. To further facilitate the work of the committee and all others charged with the responsibility for the success of the Convention, members are again urged to make reservations immediately.

New Lone Star Line

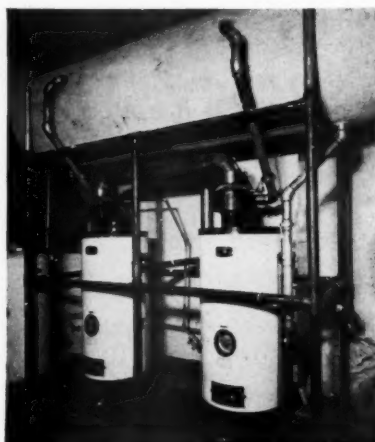
LONE STAR GAS COMPANY, late in April, completed its new 75-mile 14-inch line from Opelika to Carthage, Texas. The line will have a capacity of 100,000,000 cubic feet a day with 1,200 pounds pressure. It ties in the new Carthage field to the company's pipe line network.

About 60 miles of the line were laid through heavy timber. While fairly straight, much of the country is hilly which required numerous bends.

R. Vandercook, Lone Star pipe line superintendent, and Luther Tolbert, assistant pipe line superintendent, were in close touch with operations. The line was constructed under contract by the Oklahoma Contracting Company, and was planned under the general supervision of Julian L. Foster, Lone Star general superintendent. Lone Star inspectors on the job were Earl Miller, construction foreman; G. M. Hargus, pipe line foreman at Groesbeck; J. N. Carpenter, foreman at Gainesville, and Faye Smith, assistant pipe line foreman from Cayuga.



Twenty-two automatic washing machines are available for those who desire their laundry on a while-you-wait basis



Two gas-fired booster boilers insure an adequate supply of hot water so necessary to good laundering

Slot Machine Laundry Uses Gas

DEPENDABLE gas-fired equipment, new and good looking too, has been installed to maintain speedy and constant hot water service for twenty-two automatic washing machines, according to an article in a recent issue of Gas News (The Peoples Gas Light and Coke Co., Chicago.)

Two ex-service men have opened this automatic, while-you-wait self service launderette near the University of Chicago where the customer weighs his bundle and puts the soiled

clothes into one of the washers. At the end of thirty minutes, he removes the wash, packs it into a bag, and is merrily on his way. The charge is only twenty-five cents for ten pounds.

This new enterprise is crowded. Housewives and students, young and old, are carrying bundles or pushing little wagons or prams. The laundry-conscious do not mind going a little out of their way to get their clothes washed while they wait. This whole idea is a credit to the ingenuity of Yankee servicemen.

Gasoline from Natural Gas

Factors behind the development of 15-million dollar Hydrocol plant to convert natural gas to gasoline and effect of new processes on nation's fuel economy



P. C. Keith

CONSIDERABLE interest has been exhibited of late in the possibility of developing a process for making gasoline from natural gas at a cost competitive with the cost of gasoline from crude oil.

Such a process would make natural gas this country's first important source of motor fuel independent of petroleum. The need for a substitute oil source grows steadily as withdrawals from our crude oil reserves continue to exceed the rate of discovery of new deposits. The situation was of course aggravated by World War II, but it promises to remain a point of real concern in the postwar period. Just how long it will be before we face a really serious crude oil shortage is a matter of conjecture, but this much is certain: our oil reserves are dwindling.

Gas Reserves Increase

The proven reserves of natural gas, on the other hand, have increased materially in recent years, and the indications are that this trend will continue. In fact, the present production rate is only half the rate of discovery. If the production rate were doubled, thereby approximating the rate of discovery, and if this incremental production were converted to gasoline and oil, motor fuel production would be stepped up by 25%. Given a satisfactory natural-gas-to-gasoline process, then, it is evident that natural gas could become an important factor in the country's oil economy.

Furthermore, the manufacture of gasoline from coal is only one step removed from the manufacture of gasoline from

BY P. C. KEITH

*President, Hydrocarbon Research, Inc.,
New York, N. Y.*

natural gas. With our huge coal reserves, an economic coal-to-gasoline process would have the effect of underwriting this country's gasoline and oil requirements for centuries to come.

Hydrocarbon Research, Inc. has developed an economic natural-gas-to-gasoline process. Known as the Hydrocol Process, it consists of the conversion of natural gas to a mixture of carbon monoxide and hydrogen, followed by catalytic reaction to produce liquid hydrocarbons boiling substantially within the range of gasoline. By-products are high-grade diesel oil and oxygenated compounds such as alcohols.

The Hydrocol Plant

The first commercial application of Hydrocol Process is to be made by Carthage Hydrocol, Inc. in a plant soon to be erected at Brownsville, Texas. This plant, to be engineered by Hydrocarbon Research, Inc., has been designed to process approximately 64,000,000 cubic feet of natural gas per operating day and to produce the following:

Motor Fuel	5,800 barrels per day
Synthetic Diesel Oil	1,200 barrels per day
Crude Alcohols	150,000 pounds per day (in water solution)

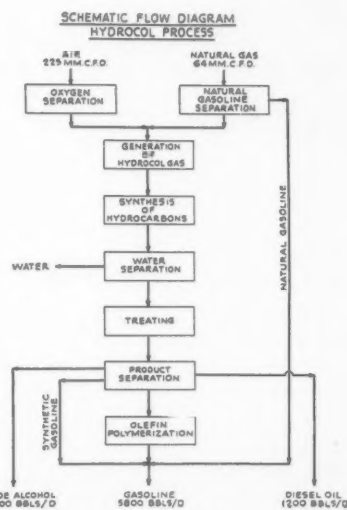
The finished gasoline produced by Hydrocol with a Reid vapor pressure of 10 pounds has a clear octane number of 80 CFRM or 88-90 CFRR. This quality of gasoline compares favorably with that produced by catalytic cracking of distillate fractions from petroleum. The diesel oil has a gravity of about 38° A.P.I., a cetane number of 45-50, and a pour point below 0° F. The oxygenated compounds in water solution consist mainly of acetaldehyde, acetone, and ethyl, propyl, butyl, amyl and

heavier alcohols. This last product offers an extremely attractive source of chemical raw materials.

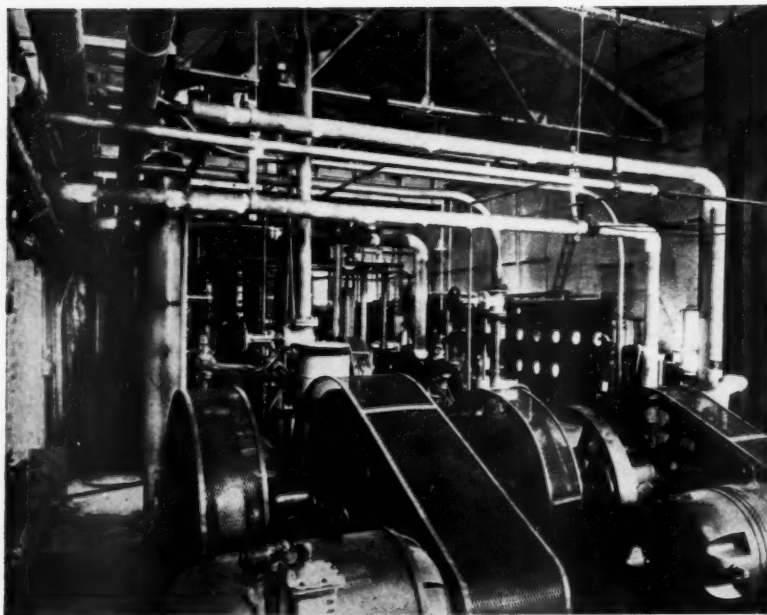
The Hydrocol Process calls for the following operations:

- (1) The recovery of approximately 0.25 gallons of natural gasoline and butane per 1000 cubic feet of feed gas. (Recovery of this natural product becomes economical only as an incremental operation of the Hydrocol Process.)
- (2) The separation of 40,000,000 cubic feet per day of high purity oxygen from air.
- (3) The partial combustion of 64,000,000 cubic feet per day of natural gas with the high purity oxygen to produce a mixture of carbon monoxide and hydrogen.
- (4) The conversion of this mixture of carbon monoxide and hydrogen—called Hydrocol gas—into gasoline and other synthetic products.
- (5) The separation of the gasoline and other synthetic products by fractionation and absorption techniques.
- (6) Treatment of the gasoline to remove oxygenated compounds, polymerization of the propylene and butylene, rerunning, blending, etc.
- (7) The manufacture and revivification of catalysts.

The Carthage Hydrocol plant is scheduled to be in operation late in 1947 and will cost an estimated \$15,-



Presented at A. G. A. Natural Gas Spring Meeting, Cincinnati, Ohio, May 7-8, 1946.



A view of the hydrocol process demonstration plant showing compressors and panel board, Hydrocarbon Research, Inc., Olean, N. Y.

000,000. Allowing credit for the diesel oil at $3\frac{1}{2}$ cents per gallon and for the crude alcohols at $\frac{1}{2}$ cent per pound, it is predicted that the "out-of-pocket" cost of the gasoline will run about $2\frac{1}{2}$ cents per gallon. This cost includes all expenses and charges exclusive of capital costs. When capital costs, including interest, depreciation and amortization, are added, the cost of the gasoline becomes 5.25 cents per gallon. This figure compares favorably with figures for producing gasoline of similar quality from crude oil at today's crude prices. Discounting any advantages which would result from a probable increase in the price of crude, it is obvious that the most fruitful avenue for improvement in the economics of the process is in the reduction of capital cost. Substantial reductions in the cost of future Hydrocol plants seem probable.

History of the Process

With this picture of the projected plant in mind, it is interesting to review the history of the process. Twenty-five years ago, two Germans, Franz Fischer and Hans Tropsch, discovered a process for the synthesis of gasoline and oil from "water-gas"—i.e., a mixture of carbon monoxide and hydrogen prepared by blasting incandescent coke with

steam. This so-called Fischer-Tropsch method was developed to the point of commercialization under government subsidy in that country about ten years ago. While it would have been uneconomic in the United States, it received favor in middle Europe due to the almost complete lack of petroleum and to the resulting artificial economy.

American engineers first became seriously interested in synthetic gasoline shortly before the recent war. A survey of the German work led to the conclusion that the Fischer-Tropsch installations, while highly developed from a chemical standpoint, were basically lacking in engineering design. It appeared that the application of modern chemical engineering practice, as typified by the process installations of the petroleum industry in this country, might very well make it possible to build a plant which would hold its own in an open market.

In reviewing the history of synthetic gasoline, it is convenient to treat separately (1) the manufacture of the carbon monoxide and hydrogen mixture, and (2) the reaction of this mixture to produce gasoline and other hydrocarbons.

The manufacture of carbon monoxide and hydrogen mixtures by the "water-gas" reaction is an old and familiar process. It will be recognized immediately as

the basis for the production of "city gas." The first commercial Fischer-Tropsch plant in Germany, built by Ruhrchemie A.G., made use of this reaction to produce the necessary ingredients for synthetic gasoline. Prior to this application, however, I. G. Farbenindustrie A.G. had had occasion to produce mixtures of carbon monoxide and hydrogen, at first for the manufacture of ammonia and later for the manufacture of methanol and synthetic oil. Since I. G. did not have access to sufficient reserves of coking coal, they were forced to adapt the process to "Braunkohle," a superior species of peat slightly lower in rank than bituminous coal. Consequently, they developed a method for producing suitable carbon monoxide-hydrogen mixtures by burning Braunkohle with steam and oxygen. The I. G. process, as finally developed in the middle and late thirties, became a reality when a mechanically sound generator was designed and an economic method of producing oxygen was developed.

"Winkler" Generator

The generator, known to the trade as the "Winkler" generator, looks very much like a squat blast furnace. Into an opening in one side there is fed crushed Braunkohle. Through tuyeres around the periphery near the bottom a preheated mixture of oxygen and steam is introduced at high velocity. This gas mixture passes up through a grate, suspending the Braunkohle in the form of a "boiling bed" above the grate. It is interesting to note that this principle of suspending a powdered solid in a high velocity gas stream is also the basis of the fluid catalyst bed, a technique which is finding greater and greater application in petroleum refining and in the chemical industry as a whole. By burning the Braunkohle in the presence of oxygen and steam, temperatures up to 2500° F. are attained in the generator, with the result that the contained hydrocarbons are distilled and cracked, and essentially all the whole mass, except the moisture and ash, is converted to a mixture of carbon monoxide and hydrogen.

The oxygen, 98% pure, was produced by the Linde-Frankl process. This method involves compressing and liquefying air and then separating the oxy-

gen from the nitrogen by fractionation. In the Linde-Frankl process, moisture or carbon dioxide is eliminated from the air mechanically rather than by chemical treatment. Much of the economy derives from the fact that upwards of 96% of the feed air needs only to be compressed to about 75 psi gauge. The plant is continuous and extremely simple in operation. In 1938, I.G. were producing millions of cubic feet per day of oxygen by this method.

With natural gas as the starting material in place of coal or Braunkohle, the natural gas can be converted either by direct burning in oxygen or by reaction with steam in an indirectly fired retort. The latter method is the familiar steam-methane process used in the synthetic ammonia and synthetic methanol processes. The steam-methane process requires a prohibitively high capital cost as well as an excessive consumption of methane. It was, in fact, the realization that cheap oxygen and direct burning of the natural gas afforded the only economic method of producing the carbon monoxide and hydrogen mixture required for synthesis that led Hydrocarbon Research to spend so much effort

and money perfecting the oxygen plant and the direct combustion method.

Brownsville Hydrocol Plant

In the Hydrocol plant to be erected at Brownsville, preheated natural gas and oxygen will be reacted at 250 pounds pressure in the generator to produce the carbon monoxide and hydrogen mixture known as Hydrocol gas. Experimentation at Olean, New York, in a 10-barrel per day semi-commercial plant, and on a larger scale at Montebello, California, has shown that the reaction goes smoothly and controllably. Operating at this pressure is advantageous because it eliminates the necessity for inserting a compressor station between the generator and the synthesis reactor. Since the natural gas will be available under pressure, the only requirement is to compress the oxygen prior to mixing it with the natural gas in the generator. Although the reaction takes place at relatively high temperature, the metal shell temperature can be maintained safely within accepted working limits by the proper selection of insulating materials and the introduction of vapor stops.

It is of interest that the oxygen unit of the Brownsville plant will be the largest ever built. Compressing air to 75 pounds, it will produce 40,000,000 cubic feet per day of oxygen at an estimated cost of 4.8 cents per 1000 cubic feet. This figure is based on an investment of \$3,500,000 for the plant (including construction labor, materials, etc.) amortization at 12½% per year, maintenance at 4% per annum, and two operators per shift. Power (amounting to less than 14 KW per 1000 cubic feet of oxygen) and water costs are excluded, since they are both available as by-products of the process and are automatically covered in the price paid for natural gas.

As will be developed later, this oxygen development should be of real interest to the gas industry since it promises not only to materially lessen the cost of making "city gas" but to open up the possibility of completely gasifying coal and producing therefrom a 1000 B.t.u. pipe line gas.

The catalytic reduction of carbon monoxide with hydrogen to produce hydrocarbons has been known since

1902 when Sabatier, the great French experimentalist, synthesized methane over cobalt and nickel catalysts at 400°-600° F. In 1912 the B.A.S.F. (Badische Anilin und Soda Fabrik, later I.G.) in Germany discovered that hydrocarbons higher than methane were formed in small amounts when carbon monoxide and hydrogen were reacted over an alkali-promoted iron catalyst at temperatures of 775°-850° F. and pressure of 100-150 atmospheres. However, the desired product of the reaction was Synthol, a mixture of alcohols, aldehydes, fatty acids, esters, and other oxygenated organic compounds. This led eventually to I.G.'s synthetic methanol process, but as late as 1921, they were reporting the elimination of "objectionable" oil as one of their chief problems.

Fischer-Tropsch Process

In 1923, Franz Fischer and Hans Tropsch discovered that the hydrocarbon yield could be greatly increased at the expense of Synthol by decreasing the pressure. In fact, at pressures less than 7 atmospheres, the product was mainly aliphatic hydrocarbons. This work formed the foundation for the Fischer-Tropsch process, which was responsible for the production of a large quantity of synthetic fuels in Germany during the recent war years.

Working under the auspices of the Ruhrchemie A.G., Fischer and his associates examined hundreds of catalysts and finally concluded that cobalt, nickel, iron and ruthenium constituted the most active metals and that thoria and the oxides of other rare earths were good promoters. It was further shown that the presence of some alkali was desirable and that kieselguhr was the best support or carrier of the active ingredients.

By 1933 the process was considered to be well enough developed to build a commercial unit. Accordingly, Ruhrchemie constructed a plant at Oberhausen-Holteln with a rated capacity of 1000 metric tons per year (about 8000 42-gallon barrels) of motor fuel and lubricating oil. The first catalyst used was a nickel-manganese-aluminum oxide mixture on kieselguhr; this was later supplanted by a cobalt-thoriakieselguhr preparation. This plant, as the others

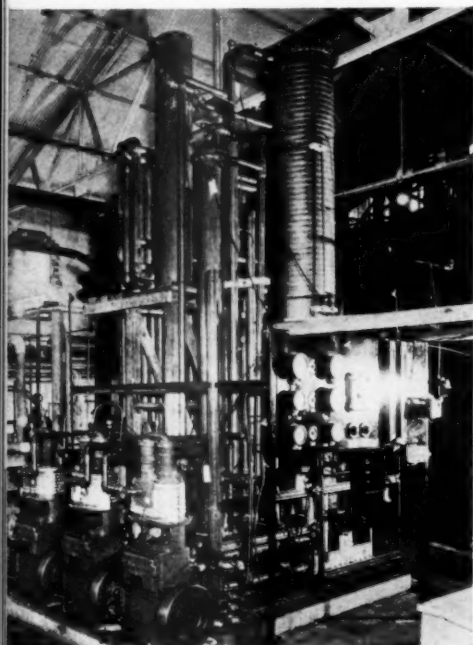
Man

● Man is still the world's most miraculous mechanism. In seventy years of life, a human being eats 1,400 times his body weight, over 100 tons of food, and he spends five full years putting food in his mouth. If his weight is average, every day of his life his heart beats 103,680 times, his blood travels 168,000,000 miles, he breathes 23,040 times, he inhales 438 cubic feet of air, gives off 85 degrees F. of heat and moves 750 major muscles; his nails grow 0.000046 inches, his hair 0.01714 inches—and he utters 4,800 words. The average person blinks 25 times a minute and scientists say each blink takes one-fifth of a second. Thus, if he averaged 40 miles an hour on a ten hour motoring trip, he would drive over 25 miles with his eyes shut. The body can take a lot of punishment and still keep on functioning. Man can get along fairly well, apparently, without his gall bladder, spleen, appendix and bladder. He can dispense with one kidney, two quarts of blood, half his brain and all his teeth and still live. And when he dies, he does not die all at once. The brain survives 10 minutes; eyes, 30 minutes; ears, 1 hour; blood molecules, 18 hours; bones, 3 days and skin, 5 days.

—The Kalends.

which followed it, had many shortcomings which could be tolerated only under a structure supported by government subsidy. Among these were:

- (1) The initial cost of the catalyst was high and reworking was expensive.
- (2) The catalyst was extremely sensitive and had to be broken in very slowly according to a rigorous schedule.



Hydrocol process demonstration plant showing synthesis reaction and recovery systems

- (3) The catalyst was rapidly poisoned by small traces of sulfur.
- (4) Catalyst life was limited to 6-8 weeks, due in part to accumulation of high melting point waxes on the surface.
- (5) Conversion of carbon monoxide to useful products was only about 40% of the theoretical, despite the use of low space velocities (maximum of 100 volumes of carbon monoxide per hour per volume of catalyst).
- (6) The yield of oil per unit of catalyst per unit of time was low, due to the low space velocity, which in turn was limited by the capacity for removal of the heat of reaction.
- (7) The reactors were complicated, extended surface exchangers, with cooling surfaces no farther than 12-15 mm. from any part of the catalyst. Since the process was operated at atmospheric pressure, the reactors were necessarily large.
- (8) Recovery of heat of reaction as useful power was low.
- (9) The gasoline produced had an octane number of about 40, too low to permit its use as a motor fuel without additional treatment.

From a detailed study of German designs and operating data, it became clear that the only way to lower the costs of the process was to improve its efficiency. This involved finding both a cheaper and more efficient means of heat transfer and a catalyst that would operate at a higher space velocity, the catalyst and the reactor design being interdependent.

For example, if the catalyst temperature must be controlled within 25° F. to maintain activity and product distribution, a minimum quantity of cooling surface must be provided on the basis of a reasonable transfer rate. This in turn fixes the maximum space velocity allowable, assuming that the catalyst activity is not limiting. For example, the heat liberation for 90% reaction of one cubic foot of synthesis gas is about 55 B.t.u.; at a space velocity of 100 the hourly duty would be 5500 B.t.u. per cubic foot of catalyst space. With a transfer rate of 10 B.t.u./sq.ft./hr./° F. and a mean temperature difference of 10° F., the cooling surface required would be 55 sq.ft. These conditions approximate the best design of Ruhrchemie.

It is immediately obvious, then, why space velocity in such a reactor as the Ruhrchemie design is definitely limited. Raising it will increase the heat load, and hence the temperature, so that either product distribution will suffer (i.e., fixed gas production will increase) or the catalyst become fouled with coke. Also, under ideal conditions in such a system, localized hot-spots can still occur. In fact, there is experimental evidence that the true catalyst temperature in a fixed bed system is at least 75-100° F. higher than the observed gas temperature and that at isolated points it is much higher.

There can be no question that catalyst activity has seldom been the limiting factor. More often it has been the efficiency of removal of the heat of reaction. In other words, with adequate heat removal, the space-time yield of oil is potentially much greater than anything that has ever been realized. It was on the basis of this conclusion that engineers of Hydrocarbon Research suggested a program of experimental work in which the space-time yield of oil would be studied as a function of space velocity and cooling surface.

In reviewing the work done by Ruhr-

chemie and I.G., it became apparent that one possible way of improving markedly the space-time yield of oil was to use the fluid or powdered catalyst technique. With the fluid process, it will be recalled, the catalyst is ground to a very fine powder (approximately 75-80% finer than 325 mesh) and is then maintained in a state of turbulence by aeration with regulated quantities of gas. When the powder is properly prepared, it can be aerated or partially suspended by the gas and assumes many of the properties of a boiling liquid. For example, there is a constant motion of the particles, and while the surface of the bed of powder is reasonably fixed, local eruptions of bubbles are evident. Furthermore, the powder flows freely, exerts a static head, and is compressible.

Among the advantages of the fluid catalyst technique are: (1) temperatures can be controlled within 5-10° F., (2) the catalyst itself is utilized as a medium of heat transfer, and (3) processes using the fluid catalyst are continuous, since any decline in activity can be compensated by withdrawal of a portion of the catalyst and replacement with fresh material.

Before embarking on a program of experimental work to determine the feasibility of the fluid catalyst technique for the synthesis reaction, it was concluded that the use of a cobalt catalyst was impractical because of the high cost, the limited amount of cobalt available, and the low-octane number of the gasoline. Accordingly, attention was directed to cheap, rugged, iron catalysts.

Experimental Work

The Hydrocol plant to be erected at Brownsville has back of it over a million dollars of experimentation carried on at Hydrocarbon's experimental station at Olean. The ten-barrel per day semi-commercial plant built and operated at the experimental station contains all the elements of a commercial plant:

- (1) A continuously operating low pressure oxygen plant with a capacity of approximately 10,000 cubic feet of oxygen per hour.
- (2) Pressure generators for the burning of natural gas with oxygen to produce Hydrocol gas.
- (3) The synthesis reaction system.
- (4) A product recovery system.
- (5) Facilities for de-oxygenating the gasoline produced.

Hydrocarbon Research, Inc., started its development work convinced that the Fischer-Tropsch process was fundamentally sound but was woefully lacking in good engineering design. It seemed obvious that the application of modern chemical engineering practice, as typified by the process installations of the petroleum industry in this country, would result in marked improvements in efficiency. In fact, it appeared probable that such engineering improvements would make the process economic in the United States, using natural gas as the immediate raw material.

The principal conclusions from the research and development work were:

- (1) The oxygen plant design is sound and oxygen can be produced by the hydrocarbon cycle efficiently and at relatively low cost.
- (2) Natural gas can be burned directly with oxygen to produce Hydrocol gas. The operation is controllable and the product gas is free of soot.
- (3) The fluid catalyst technique more than confirmed expectations with regard to heat control, and is certainly the most economic method of operating the process.
- (4) The exothermic heat of the reaction is almost totally recoverable in the form of high pressure steam. The Carthage plant will produce upwards of 750,000 lbs./hour of high pressure by-product steam.
- (5) Conversions of Hydrocol gas of better than 90% are obtainable with a cheap, rugged catalyst.
- (6) The yield of oil, based on carbon monoxide reacted, is higher than that obtained by any German investigation, and the treated gasoline is of a premium quality.
- (7) The allowable space velocities, and hence the space-time yields, are order of magnitude greater than any achieved in Germany.
- (8) The yield of gasoline can be readily controlled to constitute better than 80% of the total useful products.
- (9) There are no real difficulties or novel methods required in separating the products or in deoxygenating the gasoline.

The initial million dollar research and development program carried on by Hydrocarbon Research was financed by three companies: the LaGloria Corporation, the J. S. Abercrombie Company, and the Socony Vacuum Company. Later material development and engineering contributions were made by the Standard Oil Company of New Jersey and by the Texas Company. The country as a whole should recognize the role these companies have played in furthering the development of cheap synthetic gasoline in the United States.

Significance to Industry

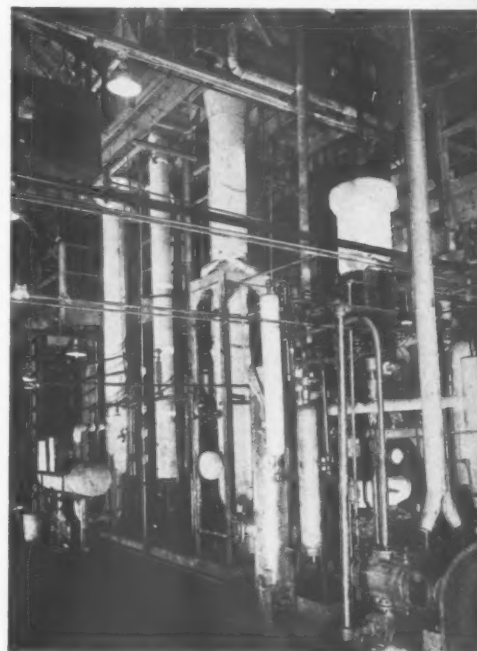
The successful operation of the plant at Brownsville could have far-reaching effects upon our national economy. These effects are most likely to be first felt in the oil industry. The feasibility of producing large quantities of a superior motor fuel from a portion of our "known" dry gas reserves will have been demonstrated. Since these reserves amount to about 175 trillion cubic feet, potentially they represent about as much oil as do our crude oil reserves. In other words, when the Brownsville plant has operated successfully and economically over a period of time, it would then be proper to reckon our oil reserves at, say, 40 billion barrels, rather than at 20-odd billion barrels. Then natural gas will begin to compete with crude oil as a raw material from which to produce refined products. What effect this competition will have upon advancing crude oil process is anybody's guess. Mine is that it will put a ceiling of less than \$2.00 per barrel on crude oil.

An obvious corollary to the above has to do with gas conservation. Sometimes it is difficult to legislate conservation, but when conservation is clearly and immediately profitable, no legislation is needed. Despite the conservation measures now enforced by various state-regulatory bodies, gas wastage still amounts to about 600 billion cubic feet per year. The major source of this loss occurs in gas vented from oil-gas separators at the fields and from natural gasoline plants. The successful operation of the Brownsville plant will place a portion of this gas in the category of a substitute for crude oil. If it were all used for such a purpose, some 60 million barrels per year of oil would result. The problem of collecting the gas in large quantities will prevent the use of the entire amount, but some of it will be used, and to the extent it is used, true and real conservation will have been practiced.

Further, the Brownsville plant will indicate a method whereby gas now used as refinery fuel can be converted into gasoline. Again, if all such gas were used for gasoline synthesis, the amount produced would approximate 7½% of our 1945 production. Obviously, all will never be so used, but some refineries will use it, substituting heavy bunkering oil

for gas as refinery fuel. And this will lead to an advance in oil prices.

So much for the immediately foreseeable effects upon the oil industry. But how does this development directly and indirectly affect the gas industry? The effects could be fundamental and far-reaching. Firstly, the competition of natural gas with crude as a source of



Experimental oxygen plant of Hydrocarbon Research, Inc., prior to insulation

gasoline is certain to increase the price of gas at the well head. In the next several years, improvements in the Hydrocol process will make possible the production of a barrel of oil from 8000 cubic feet of gas, including all gas used for fuel. If at that time the capital and operating cost of a Hydrocol plant is on a par with an oil refinery (and there is no basic reason why this cannot become true), then 8000 cubic feet of gas at the refinery will be the equivalent of a barrel of 38° A.P.I. gravity Mid-Continent crude. Then, under these conditions, gas at 17 cents per thousand just balances crude oil at \$1.35/bbl.; both prices as delivered to the refinery.

It is my guess that gas in such localities as Hugoton, East Texas and the Gulf Coast will never quite reach the equivalent price of crude oil. In the first place, gas (Continued on page 296)

Here Is Your New Freedom Gas Kitchen Booklet

READY at last is the New Freedom Kitchen Booklet in all its glory! Produced by the A. G. A. committee shown here, this is probably the finest booklet ever produced by our industry. It tells an enthusiastic story of gas at work in surroundings that will make every woman want to own a kitchen where gas plays a stellar role.

Page after page of colorful kitchens with thumbnail sketches of interesting treatments for the various conveniences of this important room are all contained in a 24-page booklet which should receive wide distribution. In layman's language it covers a wide variety of subjects such as "The Last Word in Kitchen Planning," "Various Work Centers and How They Should Be Arranged," "Color Schemes and How They Got That Way," "Ideas for

Adding Charm to the Kitchen," "Step Savers and Practical Built-in Features."

These features, combined with an interesting story about the various services performed by gas, the ideal fuel, make the book a valuable goodwill builder for any gas company's use. Copies are available at 10 cents each and can be delivered immediately. When industry needs have been filled, it is planned to offer this booklet through national advertising to consumers who write to headquarters at a price to be determined later.

Orders for booklets should be sent to New Freedom Gas Kitchen Bureau, Room 550, 420 Lexington Avenue, New York 17, N. Y.

And Here Are the Planners

IF you like the booklet on New Freedom Gas Kitchens (and you are sure to do so) toss your compliments to the six persons shown here who "shouldered" the terrific burden of producing a high-grade promotional piece and who completed their assignment in a manner which deserves the highest commendation.

These six persons constituted a specially chosen subcommittee of the Committee which supervises the preparation of the consumer phase of the gas industry's national advertising program. Clayton G. Cassidy, who served as chairman, is advertising manager of The Peoples Gas Light & Coke Company, Chicago. Others serving with him were Gussie O. Jones, advertising manager, Atlanta Gas Light Co., Atlanta, Ga., Ray T. Ratliff, advertising manager, Kansas City Gas Co., Kansas City, Mo., Thomas H. Spain, advertising manager, Public Service Electric & Gas Co., Newark, N. J., Harry Swenson, director, displays and home planning bureau, The Peoples Gas Light & Coke Company, Chicago, and J. J. Quinn, general sales manager, Boston Consolidated Gas Co., Boston, Mass.

Once on the job, Mr. Cassidy prepared a policy-and-copy platform for the booklet. This

served as the beacon which kept the committee on the beam. All through the various layout stages, the rendition of kitchen pictures and incidental art, the writing of several drafts of copy and the hundreds of time and energy-consuming details, Mr. Cassidy set the pace for his associates and maintained it. An expert himself in the preparation of effective promotional literature, he brought to the job the kind of professional knowledge that shows up unmistakably in the finished job.

With the copy approved and the art well along, it was necessary to plan for the printing. Who would assume this heavy responsibility—choose the printer and see the job right through its various stages to the final press run? Mr. Spain volunteered. The hours he spent with the artists and at the printing plant are reflected in the excellent off-set printing, the sharp detail in the kitchen pictures, the beautiful color combinations and the eye-appealing layouts.

Others on the committee gave splendid support to the Cassidy-Spain team and helped them over many a rough spot. Our congratulations and the gas industry's as well to these six co-workers who were given a job to do and did it to the everlasting credit of themselves.



Clayton G. Cassidy



Thomas H. Spain



Gussie O. Jones



Harry Swenson



Ray T. Ratliff



J. J. Quinn

Trends in Industrial Relations

Significance of current labor developments and fundamental principles upon which to base an equitable and satisfactory employer-employee relationship



Fred R. Rauch

IF I were a minister of the gospel instead of an industrial relations man I would take for my text today the quotation, attributed by some to Thomas Jefferson,—"Eternal vigilance is the price of liberty." If we ac-

cept this maxim as being true, and I sincerely believe that it is, we must not overlook the importance of industrial relations in the conduct of our business.

Industrial relations is defined in a broad sense as "relations between employer and employee" therefore, when we speak of trends in industrial relations we mean that which has happened and that which is happening that affects our employer-employee relationships.

Union Movement

There is, of course, much difference between the employer-employee relationships of today and that of the early 1800's when there were but a few unions in the United States. The unions then in existence were small and organized on a craft or trade basis, were independent of each other, and such bargaining as took place between the unions and the employers was confined chiefly to wages.

The unions of that time entered politics to stop imprisonment for debt and to end other laws which they considered oppressive to the working classes. The political influence of the unions then was almost insignificant but many of the laws which they considered oppressive were either completely eliminated or modified. This enabled the unions to concentrate upon extending their organizations and a few trades formed national unions.

Collective bargaining was only one of

BY FRED R. RAUCH

Chairman, A. G. A. Personnel Committee; Manager, Industrial Relations, Cincinnati Gas and Electric Co., Cincinnati, Ohio

the many interests of the unions in that era. Most of them engaged in a number of fraternal activities.

In this country the unions grew to some importance between 1870 and 1900. Some trades and crafts became very well organized and exercised considerable power in collective bargaining. But then, as at the present time, there was a division in the thinking of those in the labor movement. There were those who were strongly in favor of the craft union idea and others who believed just as strongly in organizing all of the laboring classes into one big union and to use its influence as much as possible to change the economic system of the country. The proponents of the craft unions won out and the Knights of Labor, which was an organization intended to include all classes of labor, was succeeded or followed by the organization of the American Federation of Labor. The American Federation of Labor was dedicated to the extension of unionism, collective bargaining and social legislation and it disregarded many of the traditional functions of the earlier unions and concentrated upon the business of unionism.

Government Aids Labor

The union movement grew slowly until World War I when it gained considerable impetus. During the period of World War I union growth was made possible by the favorable policies of the Federal Government acting through a War Labor Board which was established to assist in finding a solution to any situation which might have interfered with production and handicap the successful prosecution of the War. The unions at that time claimed a membership of five million.

In the early twenties there were slight set-backs in the forward movement of the unions due to the efforts of some employers who sought to return to conditions which existed before the War and to the weaknesses of the unions.

Beginning with the Railway Labor Act in the middle twenties other Federal laws were passed which protected the rights of labor to organize without interference from employers. Then came the National Industrial Recovery Act, followed by the Wagner National Labor Relations Act which made collective bargaining compulsory when requested by a labor organization which represents a majority of employees in a company.

Labor Act Speeds Growth

Since the passage of the National Labor Relations Act the growth of the unions has been very rapid until today there are approximately fourteen million workers who are members of organized labor unions. This is almost three times as many as belonged to the unions ten years ago.

What are the causes of this tremendous growth?

I know someone will say that such laws as the National Industrial Recovery Act, The Wagner Labor Relations Act, The Fair Labor Standards Act, etc. are responsible for this huge growth. This is partially true. But, the enactment of such laws was made possible by the lack of recognition by some employers of the fundamental rights of their employees. While we are badly in need of a revision in the Wagner Act it is unlikely that the Wagner Act will be repealed. Since these laws do exist they must be enforced and all employers are required to comply with them.

Since we must comply with the laws and meet conditions as they exist it is vitally important for all employers, especially those who for a long time did not have to deal with unions, to examine closely their practices and policies in dealing with their employees.

Address before A. G. A. Natural Gas Spring Meeting, Cincinnati, Ohio, May 7-8, 1946.

Under present day circumstances this is an extremely important job as the problems in connection with industrial relations which confront the employer in the utility industry are equally as important and as urgent as any of the other problems which have to be solved. This job requires a competent executive familiar with modern industrial relations techniques who can, if necessary, devote his full time to the task. Because of the vital importance of the problems involved this person should be a part of top management and should be responsible to the chief executive of the company.

There are many questions for which we must all find satisfactory answers, for example:

Are the wages we pay fair? How do the wages paid compare with wages paid for similar work in the community? In the industry? Does your grievance procedure work satisfactorily? Must our employees fear to bring a grievance to their boss? An imaginary grievance can be as troublesome as a real grievance and it is just as important to settle an imaginary grievance as it is to settle a real grievance.

Fairness Determining Factor

Do we have a satisfactory terminal such as "Arbitration" for the orderly solution of differences between the management and the employees? Are we sure that every employee is being treated in an equitable manner? Is discrimination for or against any employee, or group of employees, being practiced? It is just as serious to permit discrimination in favor of individuals, or groups, as it is to permit discrimination against individuals or groups.

On what basis do we make promotions? Is it fair?

How do we select men for overtime work? Is the distribution of overtime work fair?

Do we have a job classification and evaluation program? If we do have one, is it adequate? Do the employees accept it?

There are many other points too numerous to mention here which should be examined with a view to determining whether they meet the fundamental requirements of good labor relations—FAIRNESS. And I mean FAIRNESS to both sides.

If our policies and practices are fair

we should not be afraid. If we are *sure* they are fair and objective—we should defend them to the last ditch.

I believe that the foundation of satisfactory labor relations rests on the principles of the Golden Rule. In other words, fair dealing, frankness, honesty and mutual respect. Paternalism has no place in modern industrial relations. Obtaining and maintaining satisfactory labor relations is a full-time job across your whole organization.

There are all kinds of unions—some good; some bad; most of them are neither all good nor all bad. But, no matter what kind of union we do business with, we must be sure that our policies and practices are sound and fair.

Labor Divided

Competition between the C. I. O. and the A. F. of L. unions has made it necessary for them to become more aggressive and ruthless in the matter of wages and other benefits in order that they may expand and become more powerful. A significant result of this struggle for power is the total lack of responsibility of some of the present-day union leaders. Many negotiations are now begun and carried on under the shadow of a strike threat. Never before in the history of this nation have the unions been as militant, as determined, or as well equipped financially as they are today. They are preparing to launch a terrific drive to organize basic industries in areas where opportunities for union organization exists. The further organization of utilities is included in this program.

Union activity in the public utility field has increased tremendously in the past few years. This is due partly to the competition between the C. I. O. and the A. F. of L.

Increased union activity in the gas utilities can be expected as the competitive position of gas is improved in relation to coal. The United Mine Workers of America, through its District 50, is already established in the industry.

I think there is one thing we can all agree on,—that is, that the problem in connection with wages and labor relations which confronts most employers today is a very serious one. This is especially true of a regulated industry like the public utility industry. It requires, without the slightest doubt, the earnest

attention of the most competent minds in the industry. There have taken place and are under way at the present time many wage increases ranging from ten percent to more than twenty percent. Should there be a further breakdown of our wage and price controls further pressure for wage increases is inevitable.

Recent decisions of the National Labor Relations Board have encouraged the unions to organize supervisors, foremen, and others ordinarily considered a part of management. The organization of foremen by rank and file unions as well as independent unions for collective bargaining purposes is rapidly gaining momentum with the sanction of the National Labor Relations Board. This is a serious development and should be given adequate consideration to prevent further interference by the unions in the efficient and intelligent management of company operations.

It may be shocking to some of us to realize that there isn't any power or authority in this country at this time that can or is willing to force a union leader to bargain in good faith if he does not wish to, or to prevent his union from paralyzing the entire nation by a tie-up of production.

Paralyzing Strikes

As a matter of fact we are, at this very moment, facing a national catastrophe caused by the coal miners' strike.

This strike, if it is continued, will gradually paralyze the economy of the nation and endanger the health, welfare and safety of every man, woman and child in the nation. Under the National Labor Relations Act an employer could be severely penalized for failure to bargain in good faith or for certain other unfair labor practices. But under the National Labor Relations Act labor unions are not subject to penalty for refusal to bargain. The law does not mention unfair labor practices on the part of unions.

Under present-day circumstances this is obviously inequitable and unfair. The public interest requires modification of the National Labor Relations Act so that organized labor as well as management will be required to accept full responsibility for its acts. Organized labor is no longer weak and for the orderly purposes of collective bargaining does not now require the legal advantages it has held over management since the enactment of Na- (Continued on page 295)



After broiling, tissues of the sample are placed or "fixed" in Bouin's solution to keep them from changing. Following fixation the sample is dehydrated by passing through a series of progressively stronger alcohol and xylol solutions

Picture above shows sample placed in an incubator where it is infiltrated with paraffin

Microscopic Examination of Meat

Cellular structure of steaks studied in current domestic gas research aimed toward advancing the art of broiling

MICROSCOPIC examination of meat is the popular phraseology employed at the American Gas Association Testing Laboratories for an interesting phase of current domestic gas research aimed towards advancing the art of broiling.

Illustrated are a number of steps in the process of preparing broiled steak samples for a close study of their cellular structure under the microscope. Samples are taken from steaks which have been broiled under different test conditions and using different broiler constructions. It is the hope of those engaged in the project that changes in the cellular structure of meat can be accurately charted under the microscope, permitting evaluation of the degree of doneness at various levels throughout its thickness. Success of the technique would lay the foundation for development of scientifically acceptable standards for broiled meats and in turn materially aid in development of better broiler designs in behalf of the gas consumer.

Underlying theory of the new approach is that a relationship may be established by microscopic examination based on the amount of distortion in meat cells caused by broiling. The method is being explored as part of the project on fundamentals of design affecting broiler performance sponsored by the Committee on Domestic Gas Research. This includes low and high temperature broiling with and without the use of radiants as well as various types of radiants.

Successful development of the microscopic method would go a long way toward solution of many mysteries still encompassing the art of broiling. Moreover, it would bring about a scientifically accurate method for comparing the performance of different broilers and define such presently vague terms as "rare" "medium" and "well done" which at present are nothing more than individual opinions varying widely with different people.

Embedded in a paraffin block, the sample is placed on a microtome which shaves off fine sections 10 microns in thickness for mounting

Slides are stained for better visibility, passing through a second dehydration process using alcohol solutions

Examining final slides under the microscope. Such a close study of the cellular structure of steaks has a number of practical applications





Exterior view of new Kitchen Center at Rochester, N. Y.

Kitchen Center Opens

Rochester demonstrates its widely known ventilation system and other developments in a colorful group of model kitchen units

THOUSANDS of Rochesterians have already visited the beautiful new Kitchen Center which was opened by the Rochester Gas and Electric Corporation in its main office building at 89 East Avenue, Rochester, last month. The center, built on the main display floor, covers an area of nearly 1200 square feet and comprises three different types of

kitchens and an up-to-date laundry, all designed for modern living.

"The purpose of the Kitchen Center," according to Home Service Director Irene Muntz, "is to help families with their kitchen planning by giving them an opportunity to see in actual operation many of the newest and most modern developments."

In carrying out this idea the Rochester organization, with Vice-President R. E. Ginna directing the construction and operation of the new center, has featured ventilation in each of the three kitchens in the belief that an adequate ventilation system is the most important development in modern kitchen planning. One of the kitchens is equipped with the "Ideal" system, in which both oven and broiler connect directly with the concealed ventilating duct in back of the range, while a grill set into the wall above the range takes care of top burners. The other two kitchens do not have the direct oven and broiler connection but depend upon the ventilators above the range. In one of these kitchens the ventilation unit is concealed in a cabinet above the range.

"Our theory," says Miss Muntz, "is that there is no one perfect kitchen for everyone. We realize that every family has its own living habits. Some families like to entertain in the kitchen. Some eat all their meals there, while others just have breakfast in the kitchen. Many families have small children who must be under mother's eye in the kitchen. We have tried to put into our three kitchens solutions of some of these problems."

The use of color in achieving certain effects is stressed in the Rochester kitchens. The selection of floor coverings, counter surfaces, wall finishes and curtains are matters of individual taste but the Rochester group has shown how to create an atmosphere of airy spaciousness and cheer- (Continued on page 295)



The yellow kitchen with oven and broiler connected directly with ventilation duct concealed in back of range



This is the salmon kitchen in the new Kitchen Center at Rochester. The ventilation unit is concealed in the cabinet above the range

Accenting Teacher Relations

Home economics teachers get first hand review of gas service policies and activities at ten get-acquainted dinners

BY W. F. SMILEY

The Ohio Fuel Gas Company,
Columbus, Ohio



Mrs. Hulda U. Wells

90 Ohio communities. The department established itself solidly with teachers at such dinners held during the last school year.

The Ohio Fuel Gas Company serves some 400 Ohio towns—presenting a big job for the development and continuation of home service activities. Mrs. Hulda Ungericht Wells, home service director, planned the "get-acquainted" affairs to reach large numbers of home

THE Home Service Department of The Ohio Fuel Gas Company plans to repeat during the 1946-47 school year a series of "get-acquainted" dinners for home economics teachers in the schools of

economics teachers at one time, under favorable conditions.

Ten of the meetings were held—in Columbus, Zanesville, Mansfield, Elyria, Newark, Toledo, Fremont, Springfield, Athens, and Chillicothe. These cities are central points in districts served by the company. Teachers in these cities, and from nearby communities, were invited, with as many as 23 towns being represented at one dinner.

Local arrangements for each dinner were made by the home service girls (each known professionally as Betty Newton) working in the area covered. Printed invitations were sent to the teachers, and the Betty Newtons saw to it that the tables were attractively decorated.

The director of the home service advisers in the district presided over the after-dinner program. At the outset the teachers were called upon to introduce themselves. Mrs. Wells explained the American Gas Association organization of home service and distributed copies of the career leaflet, "Home Service, The Road to Opportunity."

Along with an explanation of the gas company's Home Service Department and its activities, an envelope of samples of the company's home service literature was presented to each teacher. As staff members briefly told of their particular home service duties, they called attention to literature already in the hands of the teachers.

Included were sheets of tested recipes, kitchen canning pamphlets, Girl Scout cookbooks, lessons for a junior cook, and instructions for home care of gas ranges and gas refrigerators.

Also there was a three-color leaflet outlining lectures that the Betty Newtons are prepared to give before P. T. A. and other groups.

One particularly popular presentation was that by Mary Huck, supervisor of research, who scans all of the leading women's magazines for information pertinent to home service and condenses it into a mimeographed review entitled "Research Digest." Many teachers asked that their names be placed on the mailing list for (Continued on page 296)



Dinner given in Toledo for home economics teachers in the schools of that district



Teachers attending the dinner given in Elyria. Note displays in the background



Types of Home Service material distributed to teachers at get-acquainted dinners

Court and Commission Case Review

Departures from long-held views on natural gas industry regulatory principles seen in recent decisions of courts, F.P.C., and state public service commissions



W. A. Dougherty

IF any useful purpose can be served by a review of court and commission decisions affecting the natural gas industry, the approach to the subject should be general, and the speaker must steer a course to avoid the hidden shoals of unpredictable future administrative and judicial determinations. At the same time there must be some attempt at direct application to the industry's problems of judgments heretofore made, so that the industry may take its chances on an "informed guess" at the future trend of regulation.

For eight years the natural gas business has been concerned primarily with the regulation results of the Natural Gas Act,—results affecting producing, transporting and distributing companies in varying degrees.

State Regulation Important

By this statement there is not intended any implication whatsoever that state regulation is not still of the utmost importance. Nevertheless, new actors in a new plot always attract attention and so it is unavoidable not to stress the things done by the Federal Power Commission, and the court decisions reviewing those acts.

It has been the lot of your speaker to have participated as one of counsel in a number of "firsts" under the Natural Gas Act, meaning by that reference, decisions upholding departures from long held views on regulatory principles. To illustrate what I mean, I need only mention the cases of Hope Natural Gas Company, first establishing the end result doctrine and upholding the original cost and diminishing rate base, and of

Address before A. G. A. Natural Gas Spring Meeting, Cincinnati, Ohio, May 7-8, 1946.

BY WILLIAM A. DOUGHERTY

General Counsel, Consolidated Natural Gas Co., New York, N. Y.

Canadian River and Colorado Interstate in which production of a pipeline company was brought under regulatory control by an opinion actually representing the views of only four judges of the Supreme Court.

The latest "first" in which I have participated is one to which I refer as the "most recent rate case I have lost," a decision of the Federal Power Commission in the case of Mississippi River Fuel Corporation in which 6% for the first time was fixed as the rate of return for a natural gas company.

Change in Earnings Base

Consistently since 1939 when the 6½% rate was established, the commission after reviewing the various factors considered by it, has arrived at 6½% until this decision made November 9, 1945. One searches the opinion in vain for any general statement showing that the time has come for a lower general level of rate of return. Substantially the same things are said about the Mississippi Company as have been recited on this subject in all previous cases and yet after setting down the enumerated factors such as low interest rates on bonds and low dividend rates on preferred and common stocks, a seasoned and well developed enterprise, ample provisions for depreciation, current high profit, established markets, and borrowings at low rates, the answer comes out different—just as different as if two columns of the same figures added up to diverse results. The curtain drawn in front of the actual reasons for such different treatment is designated "informed judgment," a most difficult curtain to see behind. Subsequent events warrant the guess that for some undetermined future time 6% will be the maximum figure.

In two subsequent decisions 6% has

been used, the companies affected being Allegheny Gas Co. and Penn York Natural Gas Co. In the latter case a rehearing on the question of rate of return has been granted, but probably that is because the customary voluminous statistical material was not introduced by the commission staff in that case.

The order approving a reduction of rates of Southern Natural Gas Co. made a few weeks ago was also based upon the use of 6%.

In a recent appearance before the Securities Subcommittee of the House Interstate and Foreign Commerce Committee, Chairman Olds made some elucidating comment on the processes involved in arriving at the rate of return. He stressed the fact that no formula could be used but that "informed judgment" was the proper tool for shaping the answer. In a memorandum later filed it clearly appears that market prices of securities and current cost of money are the prime factors and dominate the content of the "informed judgment."

Market Price Test

The market price test is said to be the best appraisal of the risks of the business, which are automatically reflected in the prices paid for securities. On that basis the indicated over-all required yield at the end of 1945 was 3.65%, but, said Mr. Olds, this was not used as an appropriate rate of return. While other factors are said to be considered, lesser importance is accorded them.

In a period of speculative inflation such as is now under way, prices for common stocks rise rapidly because of market factors having no regard to the actual risks of the business. In the last two years, some common stocks of gas companies have doubled in price, yet as operators of those properties, you know that the actual business risks of your particular company have not lessened. You have the same problems of gas supply and of markets. Current threats of competition in important markets and re-

strictive regulatory action toward direct industrial sales made in competition with other fuels present risks to operations, that cannot be offset by a stock market influenced by inflationary factors. The owner of common stock who invested his money some years ago on the basis of the expected earnings now finds his return diminished because others bid up the price in an inflated market. Under the fair value concept of rate making, his actual return would have kept up with inflationary trend of commodities and the deflation of the dollar. Under the F.P.C. methods the owner is placed on a basis that operates exactly to the contrary and while commodity prices rise, his return decreases.

The State Commissions are following the downward trend and for some electric utilities returns as low as 5% have been allowed. The Michigan Commission in a recent case involving the Michigan Bell Telephone Company found that 4.72% represented the current cost of capital, but the reduction in rates ordered left earnings to produce on net investment 5.6% for 1945 and 7.28% for 1946 as estimated. After dividends

on common stock at 5%, a substantial amount was available for surplus. No specific rate of return was fixed, the commission merely stating that the expected earnings would be ample to sustain the financial soundness of the company. This seems a more practical approach than to attempt to limit earnings to a specific percentage for a particular test year.

Without attempting a detailed analysis of the factors other than cost of money, it is apparent that each individual company must give paramount attention to those things that represent risks of the business that are not reflected in the current investor appraisal figures. The depressed market prices for utility securities in 1932 to 1937 were not considered by commissions as justifying an increase in the rate of return, although the investor appraisal on the basis of market prices indicated a high cost of money. Just as a *deflated* market was not considered as an accurate barometer then, so an *inflated* market should not be used by commissions as a reason to lower the compensation which the equity owner receives. One-half per-

cent decrease in the rate of return means a decrease of one or more to the equity owner since the leverage works solely on him, when there are debt securities and preferred stocks outstanding.

Industrial Business Added

The period between 1925 and 1931 witnessed the construction of the first long distance pipelines for the transportation and sale of natural gas. In order to develop an immediate load that would avoid operations at a loss in the load building period, many lines attached industrial plants as direct customers on a competitive price basis. In the elapsed twenty years the use of natural gas for industrial fuel has become a necessary factor in good pipeline operation, and whether sold by the pipeline direct or through the distribution company large industrial sales must be subject to immediate and direct control by the pipeline, else innumerable difficulties arise when interruption of service becomes necessary during peak periods.

The advantage of being able to deal directly with large consumers need not be proved to the pipeline operators. Likewise, we need not labor the proposition that whenever oil, coal or gas made from either can be purchased more economically than natural gas for large volume fuel use, the gas company will lose the business. Consequently regulation of the price either by Federal or State authority will result only in ceiling price fixing. The necessity of realizing all the profit possible from such sales by the pipeline direct, as a back log against the time when the competitive position of natural gas is not so favorable, would seem self-evident. That regulatory authorities have viewed this direct sale business with a jealous eye is not news. Only recently, however, has the attack started actively.

The Indiana Commission started off with an order against Panhandle Eastern, requiring it to submit copies of contracts and other data; and finally when pressed to a position unequivocally stated that it claimed complete jurisdiction over all direct sales in the state. Panhandle appealed this order to the State Court. Argument has been held and the case is awaiting decision. The N.A.R.U.C. filed a brief urging state commission control whether the sale legally is inter or intra state. If interstate, then it is contended

Planning National Advertising Objectives



MEETING May 7 in the Hotel Gibson, Cincinnati, were members of the A. G. A. Committee on National Advertising, representatives of the two copy committees on domestic and industrial and commercial gas and account executives and assistants of Ketchum, MacLeod & Grove of Pittsburgh and McCann-Erickson of New York. Detailed plans for national advertising for 1947 will be developed later.

Pictured above are, seated, left to right, R. M. Alderman, C. W. Person, D. P. Hart-

son, E. R. Acker, Stephen Bell, Kenneth Fellows, H. P. J. Steinmetz, Thomas H. Spain, Mrs. Dudley Templeton, W. H. McInnis, Jim Donnelly, James I. Gorton, Noel Mallaby, Emil Hofsoos, J. P. Leinroth, W. S. Redpath, Frank C. Packer, Mrs. Virginia Harper, William McKeachie.

Standing, left to right, R. G. Barnett, C. S. Stackpole, William B. Hewson, W. L. Hutcheson, H. S. Christman, R. E. Ginna, W. M. Jacobs, W. C. Grant.

that the direct sale is of a character not requiring uniform national regulation, and so may be constitutionally regulated by the state until Congress enters the field, which it refused to do in passing the Natural Gas Act, since only sales at wholesale in interstate commerce are subjected to regulation thereby. But it is further claimed that the direct sale to an industry is a local intrastate transaction.

Tax Cases

Tax cases in which various types of state taxes have been sustained are urged as justifying this conclusion, but since any kind of a non-discriminatory tax now is upheld those cases are not too persuasive. It is hoped that this issue will be pressed to a final conclusion to the United States Supreme Court. If that court holds that such sales are in fact and law intrastate, then this will be another reason why the Federal Power Commission has no jurisdiction over them, and the purported basis for the commission's recent action against Panhandle in the direct sale to the Ford Motor Co. must fall. Acting pursuant to complaints of Michigan and Indiana authorities and distributing companies, the F.P.C. rendered what seems to be an advisory opinion and declaration of intent. No order was issued in the two complaint dockets in which the opinion was rendered, but an announcement was made that an application by Panhandle for a certificate to make the connection would be dismissed without prejudice and apparently without hearing. Such an order was issued in the certificate docket.

The commission boldly states that although it has no jurisdiction over a direct sale of gas "as such," it does claim that it can so direct the use of interstate pipeline facilities to the extent necessary to protect the adequacy of service to customers. Now, no one would quarrel with that statement if limited to utility customers buying gas for resale. But the commission does not stop there. It broadly claims that "it is for the commission to determine whether it is contrary to the public interest to permit Panhandle to operate its system for the purposes proposed." Otherwise, the commission says, "it would not be able to exercise properly the regulatory authority conferred upon it by Congress."

Up until now everyone assumed that the statutory limitation on regulation meant exactly what the words state, when it reads that "the provision of this Act" are not to apply to sales not for resale. The prohibition against granting any undue advantage to any person is limited to sales "subject to the jurisdiction of the commission." This limitation is wholly disregarded by the commission which in effect holds that service to a direct interruptible contract customer is under the commission's regulatory control and not a subject of direct contract dealing.

Although an interruptible customer has no contract right to a limited number of interruptions, the commission purports to create this right and thereby freeze the present number of interruptible customers. Carried to its logical conclusion this usurped authority could prevent discontinuing direct industrial sales without commission approval since such would be an abandonment of service rendered by facilities subject to the commission's jurisdiction. By thus disregarding the "shall not" injunction of Congress the commission has seized authority not delegated to it by law. Since no such order was issued a review proceeding may be difficult if not impossible.

The Michigan Commission also issued an order finding that its approval was a condition precedent to the sale to the Ford Company and ordering the sale not to be made otherwise. This order is under review in the Michigan courts.

End Use Control

The Federal Power Commission decision possibly points out the path to a complete end use control even where no certificate questions are involved, as were in the Northern Natural, Boone, Iowa, boiler fuel situation. In that case the order permitted Northern Natural to sell natural gas to the electric generating plant for pilot burner and emergency use if the coal handling equipment failed, but refused permission to sell gas for boiler fuel saying that ample coal supplies in that area were available. A rehearing was granted and as yet no further order has been issued.

Last October the United States Supreme Court denied a review of the decision of the Fifth Circuit Court of Ap-

peals which had sustained the commission's order granting Memphis Natural a certificate for increased facilities over the strong opposition of the State of Louisiana and the coal interests, who had made much of the industrial use in Memphis of the increased volumes needed.

These decisions all have their bearing on the question of end use which is being covered by the extensive testimony on this subject which has been adduced in the general investigation Docket G 580.

The importance of the two subjects just discussed seemed to warrant extensive treatment and accordingly only brief mention will be made of other decisions.

Aboriginal Cost Doctrine

The final step in complete approval of the aboriginal cost doctrine was taken by the U. S. Supreme Court last January. When the uniform system of accounts was established about ten years ago by the Federal Communications Commission, the A. T. & T. Company brought a suit to enjoin the order particularly because of the aboriginal cost requirements. The company then contended that all excesses of purchase price over cost to the first owner in public service would be required to be written off. This was denied by the government and a stipulation was made to assure the company that such would not happen. The late Chief Justice Stone, who participated in the original case and who knew what was intended then, dissented in the recent case of U. S. v. New York Telephone Company because no showing had been made that the excess did not represent a true increment of value. Five Justices joined in holding that since the property in question had been bought from an affiliate the stipulation did not prevent the order. The fact that the entries had been made long before the Federal Communications Act was adopted and were in accord with the accounting rules promulgated by the Interstate Commerce Commission and the retroactive character of the ordered writedown were not deterrents to the enforcement of the original cost requirements of the code to which the company now was subject. This is administrative finality carried to the last degree.

Production and gathering still is

where left by the Canadian River-Colo-
rado Interstate case. There will be ar-
gued on May 13, the appeal of Inter-
state Natural Gas Company from an
F.P.C. order reducing the prices it
charges under sales contracts for gas sold
in the Monroe field from its field pipe-
line system to Southern Natural, Missis-
sippi River Fuel Corporation and Mem-
phis Natural. Although Interstate Com-
pany has a pipeline to Baton Rouge,
sales from which are subject to commis-
sion control, the field sales constitute a
separate and distant activity from the
trunk pipeline operation. The decision
by the court should clarify the situation
as to where the commission actually
must stop in its reach toward production
activities. The industry then will know
better what is needed to clarify what has
always been thought clear in the Act.

Death Sentence Upheld

Ten years ago the case brought by the
Securities and Exchange Commission
against Electric Bond and Share Co. to
compel its registration under the public
utility holding company act attracted na-
tion-wide attention. The Supreme Court
then held constitutional the registration
provisions of the law, and did not pass
on other features. This policy of divide
and conquer had its final fruition on
April first when the court upheld the
constitutionality of the so-called death
sentence. Section 11 (b) (1), under
which the S.E.C. had ordered the North
American company to limit itself to one
integrated system centering around St.
Louis and to divest itself of all other
utility interests. Scarcely a ripple of in-
terest was observed. It would have been
news only if the court had held the in-
tegration section unconstitutional. So
many systems both gas and electric are
being divided and reorganized on re-
gional lines that the case is primarily
of academic interest, but the opinion con-
firms the current doctrine supporting the
broadest sort of federal authority over
matters that may affect interstate com-
merce. The opinion states:

"This broad commerce clause does not op-
erate so as to render the nation powerless to
defend itself against economic forces that
Congress deems inimical or destructive of
the national economy. Rather it is an affirma-
tive power commensurate with the national
needs. It is unrestricted by contrary state laws
or private contracts. And in using this great
power, Congress is not bound by technical

legal conceptions. Commerce itself is an in-
tensely practical matter. *Swift & Co. v.
United States*, 196 U. S. 375, 398. To deal
with it effectively, Congress must be able to
act in terms of economic and financial reali-
ties. The commerce clause gives it authority
so to act."

It has been the custom in rate appeals
from the Federal Power Commission to
seek a stay of the rate order from the
reviewing Circuit Court. A bond is re-
quired or funds must be impounded un-
der court control. If the rate reduction is
sustained the problem of who gets the
money is a troublesome one. In the Cen-
tral States Electric case, the Supreme
Court held that the Federal Court could
not award the money to the ultimate
consumer, but that this depended upon
State law. Since that decision on Feb. 12,
1945 subsequent cases have witnessed
disclaimers by some distributing com-
panies with the Internal Revenue Bureau
agreeing that no tax would accrue if the
money went directly to such consumers.

The cost of making the final distribu-
tion can be enormous and in the recent
Panhandle rate case the court, one judge
dissenting, placed the complete costs on
Panhandle except for fund earnings
which were to be applied to such costs.
Since there were upwards of 3 million
consumers involved the cost has been

estimated to be at least one million dol-
lars. To add that to the rate reduction
is to penalize the company for exercis-
ing its legal right of appeal. This is
wrong and many believe beyond the
court's power, since the consumer has
no right against the pipeline to a refund.
The money actually is owing to the dis-
tribution company. It is understood that
this order will be taken to the U. S. Su-
preme Court, in order to have the costs
paid from the impounded funds. Such
action presents questions of the adequacy
of the review afforded by the present
law, and of the need for some alterna-
tive method by which the lower rate can
be collected until the court review is
ended, with the right to collect the dif-
ference between the new rate and the
old rate if a reversal of the commission
order is obtained.

In closing this review of court and
commission decisions, I realize once
again, that the role of narrator has been
one of gloom. The geologists are able to
report increased gas reserves, the sales
forces tell of an unending demand for
gas, and the financial officers continue
to refund securities at lower cost. Permit
me to hope that in some future day the
industry's lawyers can paint just as glow-
ing a picture.

What's Cookin' for 1947?



MEMBERS of the A. G. A. Domestic
Gas Copy Committee, consultants,
advertising counsel and guests met May 7,
in the Hotel Gibson, Cincinnati, to discuss
future plans for national advertising. The
committee decided to defer action on the
1947 program awaiting clarification of the
industrial picture. The schedule for last
quarter of 1946 was also cut because of
appliance production difficulties.

Shown in photograph are, left to right
around the table, Wm. B. Hewson, Arthur
P. Kelly, Thomas H. Spain, W. M. Jacobs,

C. W. Person, W. L. Hutcheson, Kenneth
Fellows, G. A. Saas, R. J. Canniff, W. H.
McInnis, Frank C. Packer, Lloyd C. Ginn,
Jim Donnelly, Clayton G. Cassidy, Mrs.
Dudley Templeton, Mrs. Virginia Harper,
Miss Noel Mallaby, William McKeachie
and H. Vinton Potter.

Left to right, against wall, W. M. Cham-
berlain, Harold Massey, Stephen Bell, John
H. White, Jr., Edward Drew, N. E. Loomis,
W. C. Grant, R. M. Alderman and James
I. Gorton.



Meeting of the Accident Prevention Committee at Chicago, May 8. Left to right, seated: H. H. Berman, Baltimore; W. T. Rogers, New York; H. T. Jayne, chairman, Philadelphia; Roy M. Godwin, Philadelphia; Earl Fredericksen, Omaha. Left to right, standing: A. Gordon King, New York; E. Jasper, Chicago; W. F. Brown, New York; H. W. Dunn, Waukegan, Ill.; L. K. Richey, Detroit; H. N. McConnell, New York; D. C. Stewart, Buffalo

Accident Prevention Committee Maps Program



Howard T. Jayne

APPPOINTMENT of Howard T. Jayne, safety inspector, The Philadelphia Gas Works Co., to the chairmanship of the Accident Prevention Committee was recently announced by Everett J. Boothby, president of the American Gas Association. This important committee made further progress in organizing an industry-wide safety program at a meeting at the Edgewater Hotel in Chicago on May 8. Topics discussed at that time included: the revision of safe practice pamphlets, McCarter Medal awards, National Safety Council matters, safety posters, accident statistics, slide films, and training programs.

The 1946-47 chairman, Mr. Jayne, has been a member of numerous public utility committees and, during the past two years, has been a member of the Executive Committee, National Safety Council, Public Utility Section. He first entered the gas industry in 1917, when he joined The United Gas Improvement Co. as cadet in The Philadelphia Gas Works Company. Mr. Jayne was also operating superintendent of the Gloversville gas plant, Fulton Company Gas and Electric Co., from 1920 to 1926, and has been associated with The Philadelphia Gas Works Co. in several capacities since that time. He has been safety inspector in the casualty and insurance department since 1934.

Mr. Jayne is also a member of the Philadelphia Safety Engineers Club and the American Society of Safety Engineers. He was a Training-Within-Industry inspector during the war.

Rare Natural Gas Aids Atom Research

NATURAL gas helped, too, in the developing of the atomic bomb. This interesting fact was revealed recently by the University of California when officials in the University's purchasing department in Los Angeles stated that supplies of methane gas secured from Southern California Gas Company are being used for atomic research in New Mexico.

The story begins in the Bowerbank dry gas field northeast of Buttonwillow where, for reasons geologists do not clearly understand, a deposit of practically pure methane is found. Normally natural gas contains a certain amount of ethane and traces of nitrogen and carbon dioxide, the product being distributed by local gas companies containing about 85% methane.

The Bowerbank field gas has no ethane, and tests out between 99.5% and 100% methane—an extremely rare phenomenon. Moreover it is remarkably consistent and reliable in composition. Occasionally the gas has been used for fuel purposes when extra supplies are needed, but generally the wells are "shut in" and the only use made of the gas is for scientific purposes.

Because of the purity and uniformity of the gas, local gas companies have employed it for several years to standardize and check calorimeters and gravimeters in measurement laboratories. Despite the fact that the wells are closed, the Texas Company has permitted the Southern California Gas Company to withdraw limited amounts for this purpose without charge. The company pro-

vides high pressure cylinders which are filled at the well.

Some time back, the California Institute of Technology, hearing of availability of this rare natural gas, asked for a supply to be used in laboratories in Pasadena. SoCal was only too glad to let them have the gas under the provision that they furnish the cylinders and pay transportation and handling costs. Caltech was so pleased with the arrangement and so delighted with the gas that they spread word around among other educational and scientific institutions, and very soon SoCal found itself supplying methane gas for universities and scientific and research laboratories from coast to coast.

One of the best methane customers was the University of California at Berkeley, where Dr. Lawrence has been doing experiments with a cyclotron, or "atom smasher." However, inasmuch as the University bought the methane through a purchasing department established in Los Angeles, no one in the gas business saw the significance of the purchases until recently when the University's Los Angeles office itself revealed the secret.

Asking SoCal to rush through an order for several cylinders of methane, the purchasing office explained that all during the past two or three years, the cylinders of methane have been shipped to New Mexico to be used for technical operations in connection with the phase of atomic bomb development that has been going on out there. It was in New Mexico that the world's first atomic bomb was detonated.

Just a few days ago, the University again asked for a rush order. Research, they said, was still being continued, and they needed the gas at this particular time for work preparatory to the experimental naval bombing on Bikini atoll in the South Seas.—*Southern Counties Gas News*—April 23, 1946

"Fourth Zone" Cooker Has New York Debut

AFEATURE showing of the Vendo "Fourth Zone" steam oven, described in the April A. G. A. MONTHLY, was held at the Hotel Pierre, New York City, on May 2 and 3. Separate demonstrations of the new appliance were held on each day for the benefit of representatives of national magazines, press associations, trade and new products publications, and editors of newspapers.

Rebecca Sullivan, home service director of The Gas Service Company in Kansas, assisted by Helen Brown of the Kansas City home service department, cooked whole meals and gave an excellent point-by-point description of the advantages of the Vendo cooker. Miss Sullivan used a separate floor model as well as one installed in a model gas range.

Present at the New York demonstrations were C. C. Young, head of the research department of the Gas Service Co., who originated the appliance; F. M. Rosenkrans, new business manager, The Gas Service Co.; Elmer Pierson, and Fred Pierson, president and vice-president, respectively, of the Vendo Company, and other Vendo officials, and American Gas Association representatives.

Range Design Contest Winners Chosen

THE greatest collection of gas range designs ever assembled were considered in the judging of American Stove Company's \$18,000 Magic Chef "Gas Range of Tomorrow" competition, according to the company.

In announcing names of winners, S. E. Little, vice-president, stated that well over 900 entries were considered and that every conceivable range design was included. Six women shared in the awards. He said there was no doubt that the contest had greatly increased the "gas consciousness" of consumers, architects and designers alike.

First, third, and sixth place awards were won by Product Design Associates, 327 Lexington Avenue, New York, and a designer, Marie Di Bari. Included in the firm group were Sidney L. Katz, Taina Waisman, Joseph Blumenkranz, Victor Elmaleh, and Read Weber.

Second prize was won by Roger G. Spross, 534 West 124th Street, New York, while two greater New York contestants—Bert L. Bassuk, 79 Tonkins Avenue, Brooklyn, and Martin Glaberson, 14 East 39th Street, New York City—shared the fourth place award.

Fifth prize also went to a New Yorker, Lt. Comdr. W. R. Holt, USNR, of 160 East 48th Street.

The first prize award was for \$5,000; second prize, \$3,000; third prize \$2,000; and fourth, fifth, and sixth prizes, \$1,000 each.

The ten \$500 awards went to Alfred C. Hoven, 1504 Lake Grove Ave., E. Grand Rapids, Mich.; The Architects' Collaborative, 1430 Massachusetts Ave., Cambridge, Mass. (Mrs. Sarah Harkness, Louis A. McMillen, and Benjamin Thompson); William E. Lunt, Jr., 8434 Ardleigh St., Philadelphia, Pa.; Stewart H. Herman, Seattle, Wash. (two awards); Mr. and Mrs. Walker Johnson, 2 Elm Court, Buffalo, N. Y.; A. L. Malott, 3200 Franklin Blvd., Cleveland, Ohio; Helen G. Dunn, 722 W. Glendale Ave., Milwaukee, Wis.; Robert Dean Pfister, 367 So. Island, Rocky River, Ohio; and Gordon M. Nunes, University of California, Los Angeles, Calif.

All winning designs are now being studied in an effort to determine what can be incorporated in the "Gas Range of Tomorrow."

The jury in the contest was composed of

Dr. Elaine Knowles, Teachers' College, N. Y.; Peter Schladermundt, industrial designer, N. Y.; Paul Schweikher, architect, Chicago; Edward D. Stone, architect, N. Y.; and Gardner Dailey, architect, San Francisco.

Architectural Forum acted as sponsor of the competition, while George B. Nelson, of Fortune Magazine, was professional advisor.

Ordinance Would Eliminate Chimneys

AN ordinance pending before the Ordinances and Legislation Committee of the Minneapolis City Council would permit new homes to be built without standard chimneys if gas heating is to be installed; all that is required would be a vent flue of sufficient thickness and insulating qualities to avoid temperatures in excess of 160° on adjacent combustible material.

A public hearing was scheduled to be held, with considerable resistance building up against it from other fuel industries and the building trades. The principal complaint is that when the home changes hands the buyer would be at the mercy of one fuel, whether or not he liked it.

Gas Industry Aids "Save Food" Campaign

THE full weight of extensive experience in food preservation campaigns gained during the war by the home service departments of the gas industry has been mobilized to support the present world-wide "Save Food" campaign. As an example of the effectiveness of this branch of the gas industry, in the summer of 1944 customer contacts in food preservation totaled six million, requiring the preparation and distribution of two million canning booklets. Millions of quarts of food were preserved during the war under the supervision of gas utility home service departments.

In 1945, home canners canned approximately two-thirds of the fruit and one half of the processed foods available to civilians. Food preservation was actively promoted in the gas companies and full cooperation was given to the victory garden promotion.

In 1946, this cooperation again will be given through distribution of canning literature and discussions, displays on canning equipment with accompanying explanations, sales floor demonstrations and group meetings.

A facts sheet "How Homemakers Can Help to Save Food to Fight Famine," released by the Bureau of Human Nutrition and Home Economics in the U. S. Department of Agriculture, has been released to home service departments through the A. G. A. Home Service News. It contains information on ways to use foods other than wheat and fat in menus. This information is being disseminated by gas companies in posters, news releases, mailing cards and, specifically, through the lecture

and demonstration promotions of the home service departments.

Famine Relief

Wheat and wheat products—food fats and oils—are the mainstays in food supplies being shipped overseas to avert famine. A teaspoon of fat a day saved by every man, woman and school child in the United

States will amount to a total saving of at least 1,000,000 pounds of fat a day according to the U. S. Department of Agriculture. One half slice of bread each day saved by every family in this country would mean a national daily saving of half a million pounds of bread.

The gas industry is geared to offer its services in this national program of conservation largely because its home service departments have the confidence of homemakers and thus can extend influence toward national food saving.



Home Service group of New Orleans Public Service Inc., sponsoring canning booth at Curb Market. Note canning literature and pictures of food preservation processes

Los Angeles Host to Domestic Gas Research Conference



F. M. Banks

ful with enthusiasm and interest in current research endeavors running high.

Welcomed to Los Angeles by F. M. Banks, chairman of the Committee on Domestic Gas Research, delegates took an active part in the conference proceedings, displaying particular interest in stimulating panel discussions. General sessions featuring reviews of recently completed research projects were held while panel sessions on cooking, house heating, water heating and burner research were conducted.

SPONSORED jointly by the Committee on Domestic Gas Research of the American Gas Association and the Sales and Manufacturers Section of the Pacific Coast Gas Association, the West Coast Technical Conference on Domestic Gas Research held in Los Angeles, May 16-17, proved most success-

Luncheon speakers on Thursday were LeRoy M. Edwards, vice-president, Pacific Coast Gas Association, and Eugene D. Milener, A. G. A. Coordinator of General Research. Mr. Edwards welcomed the group to Los Angeles on behalf of the Pacific Coast Gas Association and Mr. Milener discussed the philosophy underlying the current research program.

Luncheon speakers on Friday were Newton S. Leichter, engineering stylist, and Professor C. E. Blome of Purdue Research Foundation, Housing Division. Mr. Leichter discussed gas appliance styling from the standpoint of "The Importance of Research in Appliance Appearance." Professor Blome spoke on "Problems in Connection With Vapor Condensation in Homes."

Technical papers reviewing current research followed the pattern set in the Cleveland Conference held in February which drew a record attendance. These papers included revisions to cover latest findings and previews of new phases of projects under way.

Five members of the American Gas Association Testing Laboratories staff reviewed projects assigned to the Laboratories. R. M.

Conner, director, gave a paper on application of radiants to oven broilers. Chester A. Thorp, chief engineer of research, reviewed new work on totally aerated burners and discussed water heater design for customer satisfaction. Walter B. Kirk, supervisor of domestic gas research, gave papers on both central heating and water heater research. Joan Huck presented papers on heat absorption by utensils and oven heat distribution. Fred A. Allen, assistant supervisor of the West Coast Laboratories, discussed primary air injection.

Benjamin O. Hicks, of the jointly-sponsored Southern California Gas Company-Southern Counties Gas Company of California appliance laboratory, presented a discussion prepared by Professor C. F. Prutton, of Case School of Applied Science, on galvanic corrosion of dissimilar metals as applied to hot water storage tanks.

Released at the conference was a new Research Bulletin, No. 37, Primary Air Injection Characteristics of Atmospheric Gas Burners—Part II, which presents a new primary air injection equation developed at the Laboratories.

Chairmen of the individual panel sessions held on May 16 were: W. M. Couzens, who presided at the Gas Cooking Research Panel; H. W. Geyer, who presided at the Gas Water Heating Research Panel; and A. B. Banowsky, who presided at the Gas House Heating Research Panel. Guy Corfield presided at the General Discussion Session held in the afternoon of May 17. In addition to encouraging lively discussions of papers presented and of research projects currently sponsored by the Committee on Domestic Gas Research, Mr. Corfield discussed new research projects being contemplated. He also acquainted conference members with the procedure for suggesting new projects to the Committee on Domestic Gas Research.

The conference was held at the Ambassador Hotel. Advance arrangements were made by Mr. Milener. Local arrangements were largely handled by Carl Swigart, trade relations representative, Pacific Coast Gas Association, in cooperation with W. H. Vogan, Supervisor, Pacific Coast Branch Laboratories.

New Freedom Display at Home Show

WITH the exhibit theme, "Gas Leads the Way to New Freedom in Living," the gas industry display shown below at the Houston National Home Show, May 5 to May 12, was one of the outstanding attractions at the show. More than 100,000 show visitors viewed the display sponsored jointly by the Houston division, United Gas Corporation, and the Houston Natural Gas Corporation, of Houston, Tex.

Modern appliances, including an all-year gas air conditioning unit, a new gas refrigerator, a "CP"-model gas range, an automatic gaswater heater, and a gas closet-type home

heating unit, were on display.

Mildred Lyon, home service director, Houston division, United Gas Corporation, is shown below at the "CP"-model gas range, discussing the advantages of "CP" gas cooking to a Houston couple. To the left rear, Frank Glenney, dealer co-ordinator of the Houston Natural Gas Corporation, is pointing out to interested spectators the advantages of the latest model of an all-year gas air conditioning unit.

This was the first Houston National Home Show to be staged in that city in five years and a record attendance was enjoyed.



Gas industry's display at Houston National Home Show ties in with New Freedom theme

Lots of Gas for Industry

BY the grace of God, geography and lots of natural gas" was the headline of a full-page advertisement appearing in several New York newspapers recently during the coal strike.

The Dallas (Texas) Chamber of Commerce, sponsor of the advertisement, in extolling the advantages of their area for industries said, "The Dallas Southwest's almost inexhaustible supply of natural gas provides the best and cheapest fuel for industrial as well as domestic uses. Natural gas for steam generating plants of Southwestern power companies insures uninterrupted electrical power for the general public as well as industry."

Here, natural gas is the keystone that holds industry, and attracts new enterprises to that territory. THE TREND CONTINUES TO GAS.



"Quizzing the Wives" on the air at the Hotel Statler, March 22, as one of the features of the New England Gas Association's Convention meetings. On the platform at the microphone is a team of ladies from a local American Legion Auxiliary group

Radio Program "Quizzing the Wives" Wins Many Friends for Boston Gas

GOODWILL contact is being made daily with scores of women's clubs, civic and church groups through Boston Consolidated Gas Company's novel radio program, "Quizzing the Wives." This program, which is heard each weekday morning, Monday through Fridays at 10 to 10:15, Station WNAC, has enjoyed outstanding success since its inception in January 1945. So popular is the program among women's groups that the schedule of club appearances on the show is booked up to November 1. A Hooper Survey of radio listenership in Boston showed the Boston Gas program leading all other programs in number of listeners to Boston stations from 10 to 10:15 A.M.

Up to April 15, 300 women's groups have participated on this program, and sixty of these clubs have won jack-pot awards ranging from \$40 to \$62. Groups appearing on the program are customers of the Boston Consolidated Gas Company and each group must contain fifty or more members to be eligible to compete. Four ladies make a team which answers questions drawn from a miniature gas range. Each question has a money value, payable in Victory Stamps. When a question is answered correctly its money value is paid to the participating member, but if it is missed the money is placed in a jack-pot which is awarded the team winning the highest number of points for the week.

Commercials for gas and gas appliances are woven through the program by the quizmaster and an announcer. A home service representative is present at each broadcast and immediately following the session on the air, conducts a question and answer period,

during which the studio audience present their cookery problems and receive help with them. This part of the program is under the supervision of Susan Mack, home service director of the Boston Consolidated Gas Company.

"Quizzing the Wives" is conducted under the supervision of Gerald A. Higgins, advertising manager of the company, together with Alley & Richards, the advertising agency.

Ventilation Plan in Limelight

THE kitchen ventilation system developed by the Rochester Gas and Electric Corporation has gained considerable national prominence lately in publications outside the gas industry. Close on the heels of an illustrated article in "The Architectural Forum," a feature story appeared in the April 28 issue of "This Week," syndicated Sunday magazine section in scores of newspapers throughout the country. The latter article, entitled "Packaged Ventilation" was written by Harriet Morrison.

New Three-Way Bench Furnace

DESIGNED to fulfill the requirements of a wide variety of applications, a new "three-way" bench type Universal Laboratory Furnace is now available from Surface Combustion Corporation, Toledo 1, Ohio. Con-

trolled operation over a wide range of temperatures further enlarges its field of use.

The furnace combines three different types of furnaces in one casing. It may be used as a direct-fired oven unit at temperatures from 300° to 2400° Fahr. For direct heating a muffle can be placed on the hearth. If an atmosphere is desired a diamond block can be used in the muffle. A removable plug built into the arch of the furnace provides a means of inserting a pot.

This laboratory furnace is said to be ideal for small shops or laboratories where a wide variety of heat treatments in relatively small quantities of small parts must be performed. Such operations as annealing, carburizing, hardening, cyaniding and tempering, with or without a furnace atmosphere can be handled by the one furnace. It functions as a direct-fired oven, indirect-heated muffle, gaseous atmosphere, salt or lead-bath-type, and may also be used for melting soft and light metals such as tin, lead, aluminum, magnesium, etc.

The furnace is equipped with three atmosphere-type gas burners, each of which can be independently controlled. The burners are arranged under the hearth to provide uniform and rapid heating throughout the heating chamber. A gas pressure regulator assures uniform control of burner operation. Fuel under low pressure without air under pressure is sufficient for burner operation, such as manufactured or natural gas at 3 to 6 inch water pressure, or butane or propane at 9 to 11 inches pressure.

Dimensions are as follows: Hearth width and length, 6 by 12 inches. Door width and height, 5¼ by 4¼ inches. Overall dimensions, width 19½ inches, length 21⅞ inches, height 29 inches. Hours to heat from cold to 2400° Fahr.—2. Maximum gas demand 90,000 B.t.u. per hour. The unit is designed as Universal Laboratory Furnace UL-6-12 and detailed specifications and prices are now available.



Surface Combustion's new laboratory furnace. Shown also are (A) a muffle for indirect heating, (B) a diamond block for use in the muffle if an atmosphere is desired, and (C) a removable plug built into the arch of the furnace which can be easily removed to provide a means of inserting a pot (D)



As the French See Us

THE resumption of international postal relations has brought us a complete collection of the American Gas Association MONTHLY including all copies issued during the war. This magnificent magazine, impeccably presented, gives food for thought because it is the living journal of a potent industry in a powerful country. We shall quote some specific facts about this, moreover, in a short article elsewhere in this issue. We shall not quote the statistics of the consumption of gas which would lead us to astronomical figures due to the addition of billions of cubic feet of manufactured gas to the tens of billions of cubic feet of natural gas.

It is not to figures that we call attention, but rather to the lesson taught by some 60 multi-colored issues of this magazine where we find an echo of those five years that we have just lived through—but under what different circumstances! Although we are discussing a professional magazine which is properly limited in its subject matter, we can nevertheless sense therein all of the events which took place in the world.

Gas in the War

Although in 1939 and 1940 America had not yet entered the conflict, we nevertheless begin to see allusions to the preparation for war. Yet at the same time, the MONTHLY still reflects the normal life of the country; there are discussions of technical matters, of advertising, proceedings of conventions are quoted.

In 1941 the atmosphere changes: America in its turn enters the struggle. One senses this discreetly: in a statement of loyalty to the White House; in an exceptional frontispiece where the Star-Spangled Banner floats above the Capitol in Washington. But little by little all the nation girds itself for war and the powerful gas industry makes its important contributions.

These contributions have a two-fold aspect. The gas industry is active in the manufacture of armament and vehicles, planes as well as bombs are "treated with gas" in furnaces whose capacity surpasses all our usual conceptions. Through the restrictions imposed upon the civilian population because of war, gas is removed from the uses of peace: to make cannons one can't manufacture kitchens and gas is rationed in the same way as gasoline, steel, food and manpower.

Spirit of Youth

And the people of the United States for whom everything is undertaken in a spirit of youth, enthusiasm and dash, attack this subject with advertising themes that they develop with frenzy.

Temperature Rises

In the pages of the MONTHLY, as one turns them, you can feel the temperature rise under a flood of publicity marvelous to look at: hundreds of posters develop the theme that vitamins saved by the use of gas will help everyone. Photographs show us ravishing pictures of meter readers with the smile of Hollywood who replaced the men mobilized for war and the Association seriously studied the risk of accidents which might follow the use of a bicycle in place of a truck. Finally, the use of gas is influenced by great migrations brought about by the construction of plants engaged in armament work.

Above all, the industrial effort is shown as the ultimate aim: transmission lines are built in record time through hundreds of miles of country to supplement the natural gas needed at centers of construction and at armament plants. Gas laboratories work around the clock to design industrial equipment in ever increasing numbers.

U_s
Editorial from *The French Gas Association Magazine*,
"Journal Des Usines à Gaz," March 15, 1946

bers, with greater capacity and efficiency for making cannons, airplanes, ammunitions.

Nevertheless if we continue to turn the pages of the A. G. A. MONTHLY we can see, around 1944, an increasing eye to the future although the war effort does not relent: paralleling the laboratory studies of industrial equipment we observe the creation of the "CP" stamp which is to be characteristic of the equipment after the war.

New campaigns are prepared and launched—such as the New Freedom Kitchen where gas will take its place in a harmonious ensemble. New information is available on the gas refrigerator, considered the most perfected of the domestic appliances. Thought is given to competition and the gas industry emphatically indicates that it does not intend to play the roll of Cinderella to any sister industry.

Victory Credo

Then victory is underlined in an issue during 1945 by a credo of faith of all American gas men in the future and the certainty that their industry will hold its place in peace just as it filled its mission during war.

Research in the Limelight

If we were to underline in this assembly of papers the most characteristic trait which we were able to find, it would be the fact that American gas men attached greatest importance to research—and they have answered affirmatively the question, "Does research pay?" Americans have answered this a long time ago and therefore when the Laboratory at Cleveland was partially destroyed on October 20, 1944 in the catastrophic fire of the liquefied gas storage system of the East Ohio Gas Company, it was reconstructed as rapidly as possible. It

was officially understood that this step constituted a necessary symbol of the vital nature of research in the development of the gas industry.

It should be most definitely noted that this research is not only in the domain of gas production technique but is just as much applied to gas appliances. American gas companies regard themselves as instruments of "Public Service," having the power to sell, install and maintain gas appliances and at the same time an obligation to maintain the best relations with dealers and manufacturers. Our English colleagues have the same attitude and it has been restated in the Heyworth Report, namely that it would be vitally necessary for gas companies to have the power to sell and install appliances.

It should be added that this information and particularly that which concerns technical matters was known to us through the reports which we received from the French engineers sent to the United States several months ago.

Effect on the French

In a few hours' reading of the MONTHLY we obtained the effect of living the life of our U. S. colleagues during five years and this has given us a rather complex viewpoint:

First, a sentiment of gratitude of the disinterested effort of a whole people engaged in a war which was a crusade for civilization and in which much of the burden was left in their hands.

Then, we have a profound admiration for the development of this effort with enthusiasm and unity which is the characteristic of youth, indeed that of their entire country.

And finally, and perhaps as the result of the preceding, we have a certain sentiment of regret that we did not hold the same ideas at home.

Natural Gas Planned For Washington

A VAST program of converting District of Columbia service to natural gas, not expected to be completed until October 1947 has been started by Washington Gas Light Company.

Marcy L. Sperry, company president, announced filing of applications with the Public Service Commission of Maryland and the Virginia Corporation Commission as the first step in the program which will include tapping the Texas-West Virginia pipeline.

Most Washington suburban areas are due to get straight natural gas before the 1946-47 heating season. Mr. Sperry pointed out adjustments must be made on appliances of more than 250,000 consumers. Washington consumers now use a mixture of natural gas from the Appalachian area and manufactured gas.

In the change-over, the company will retain some of its production facilities to assure meeting peak demands and for emergency use. An application similar to the ones filed with the Maryland and Virginia commissions will later be made with the Public Utilities Commission of the District of Columbia.

McCall's Article Spotlights Gas Range

ONE of the most informative gas appliance articles ever published in national magazines is the four-color illustrated feature "Your New Gas Range—How to Select It" by Elizabeth Sweeney which appeared in the May issue of McCall's Magazine.

After telling the reader what features to look for in buying a new range, Miss Sweeney goes on to describe the many advantages of modern "CP" gas stoves. This latter section carries mouth-watering four-color food illustrations surrounding a modern gas range in action.

Copy tells the function of the oven, broiler and top burners, and goes into detail on its performance under such leaders as: "It barbecues for flavor"; "It bakes to perfection"; "It roasts to your taste"; "It simmers to save"; "It boils vigorously"; "It broils for speed"; and "It braises for tenderness and flavor."

With a background in gas industry home service before entering the magazine field, Miss Sweeney knows whereof she writes. She is a past chairman of the A. G. A. Home Service Committee.

A. G. A. Meritorious Service Award

THE American Gas Association is inviting applications from gas utility companies and manufacturer company members for consideration for the 1946 A. G. A. Meritorious Service Award, bestowed to the employee who has performed the most meri-

Munroe Award Deadline Aug. 1

ALL applications for the Charles A. Munroe Award must be submitted to the Award Committee at American Gas Association headquarters not later than August 1, 1946. As the highest honor within the gift of the gas industry, this coveted recognition should receive the prompt attention of every gas company. Don't neglect to send in your candidate promptly. For full particulars see page 217 of the May A. G. A. MONTHLY.

torious deed during the year beginning July 1, 1945, and ending June 30, 1946.

In June, 1933, Walter R. Addicks, senior vice-president of the then Consolidated Gas Company of New York, tendered a medal to be presented annually by the American Gas Association. A sum was bequeathed to the Association in 1935 by the late Mrs. Margaret Jardine Addicks in memory of her husband, to carry on the award in perpetuity.

The award, consisting of a beautiful gold medal, button and certificate, in the past has been bestowed for deeds of conspicuous judgment, intelligence or bravery, connected with the handling of materials of manufacture or the production, manufacture or distribution of gas. The discrimination with which the award has been granted greatly has increased its prestige.

Applications for the current award should be sent to A. G. A. Headquarters on or before August 1, 1946.

Lone Star Gas System Expansion Planned

GROWTH of the territory served by Lone Star Gas Company, Dallas, Texas, demands expenditure of millions of dollars in service facilities this year, D. A. Hulcy, president of the company, has announced. More than \$8,294,000 has been budgeted for construction and equipment over the gas system comprising 300 thriving towns and cities.

Among reasons for this huge expenditure, he explained, is the addition of 18,500 new meters last year. The last five years the company has added 78,175 customers.

Following are the principal expenditures planned:

Street mains, service lines, meters, regulators, replacement and other facilities for serving customers in the towns and cities, \$2,000,000.

Pipe line construction from gas fields to the cities to tap additional gas reserves, \$2,156,000.

Expansion of butane facilities for gas service beyond the gas mains so more people on farms may have city gas service, \$433,000.

Drilling wells to insure adequate gas supply for many years, \$1,270,000.

Dehydration, cycling and gasoline plants to treat the gas and promote conservation, \$1,360,000.

Replacement of existing facilities, such as automotive equipment and machinery, \$865,000.

Purchase of leases for future development, \$210,000.

Bryant Adds to Domestic Heating Units

BRYANT Heater Company, Cleveland, announces the addition of steel furnaces to its line of gas-fired domestic heating units.

Available for gravity or forced-air systems, with push-button or automatic electrical ignition, the new furnaces are rated at 70, 90, 120 and 140,000 B.t.u./hr., and meet the latest A. G. A. pre-heating element temperatures.

Design work just completed on the steel units has included a number of features new to this type of furnace. Particular attention has been paid to the silent operation of the unit, and the almost total elimination of flat surfaces has done away with the "oil-canning" and rattling which usually occur in furnaces of this type during warming-up and cooling periods.

Combustion chamber and heat exchanger have been arranged in updraft layout in the new Bryant furnaces, to avoid entrapment of condensate and resultant corrosion within the exchanger tubes.

The burner unit represents another departure from conventional design, and is of rectangular rather than circular shape. This axial burner is said to result in improved and concentrated heat transfer without hot spots in the combustion chamber.

Easy access to the heating elements makes the new steel furnaces thoroughly cleanable.



Cutaway drawing of Bryant steel furnace

Accounting Section

E. F. EMBREE, Chairman

LEITH V. WATKINS, Vice-Chairman

O. W. BREWER, Secretary

Functional and Cost Accounting

BY OTTO GRESSENS

*Vice-President and Comptroller,
Commonwealth Edison Co.,
Chicago, Illinois*

THE problems of cost accounting in utilities are peculiar and sometimes difficult and arise out of the conventional operations of these companies. Several factors contribute to obscure a clear perception of the cost of utilities services. In the first place, regulation in most states is a fact of long standing and systems of accounts to aid or accomplish regulatory purposes have been prescribed by most commissions.

There has been a tendency for accounting to become progressively a more important tool for the purposes of regulation. This development places an increasing emphasis upon the regulatory aspects of prescribed accounting classifications. Necessarily, however, any prescribed classification of accounts is a generality which attempts to make possible comparisons among the companies in an industry.

Such prescribed systems do not always fit the peculiar conditions of any single company and to the extent that they are complied with or without the concomitant installation of an internal accounting system designed to fit the needs of a given company, they may obscure, rather than present effectively, the results of operations.

Unit Cost Standards

In the second place, the utility business, being a service business, does not lend itself to unit cost standards as do some commercial and manufacturing establishments. Most utilities, in addition to rendering utilities services, construct their own plant, sell electric or gas appliances and repair appliances and thus engage in several major functional activities, which, from an accounting point of view, are distinct one from the other. The problems of joint costs and cost allocations arise, therefore, to contribute to the difficulties of preparing simple and concise cost analyses.

To meet this problem, there has been developed, particularly in recent years, the concept of functional accounting. This is nothing more than an attempt to obtain cost statements by activities which could be used as improved management tools for the control of expenditures. A simple concept of such a system is one in which the defined activities or functions are based implicitly on the functional organization of a company.

The functions list, in other words, the major activities of the respective departments

and thus provide a vehicle for obtaining expenditure statements in connection with these departmental activities. These functions can then be regrouped and translated into the prescribed classification of accounts. It is immediately apparent, of course, that such functions are, in effect, sub-accounts of the prescribed accounts. A significant additional characteristic is, however, that the respective function groups are defined as activities of the several departments of the company, rather than as subdivisions of a prescribed prime account which, of itself, has only a vague and indirect relationship to the operating organization of any given company.

In developing such a simple concept of functional accounting, however, it becomes immediately apparent that there are some serious problems of design. The system should be so designed that the applicable functions for a given department are self-contained and that no other department be allowed to report charges to them. Clearing functions must be provided, of necessity, in order to have a vehicle to transmit charges from one department to other departments if activities of a service character have been performed interdepartmentally.

Close Control Necessary

A close control of such clearing functions must be maintained, however, and the responsibility for clearing the costs involved must remain with the accounting organization. Service departments, such as the transportation and stores departments, as a matter of fact, present peculiar difficulties in connection with the analysis and presentation of expenditures. Their costs are usually incurred in whole or in part as specialized services for other operating departments. The costs incurred by them, when charged to the departments to which the service has been rendered, are not controllable by the end user. Some distortion of responsibility for expenditures, therefore, occurs when charges from service departments are included in departmental expenditure statements for the departments which have used the services.

A choice must be made, therefore, between

a presentation which includes only responsibility for expenditures and a presentation which purports to present the total expenditures in connection with a given set of activities. Generally speaking, I believe, departmental statements based upon responsibility for expenditures are a better management tool than the alternative statements which include total costs of a given set of activities.

The function system must be defined as a set of activities, which, group by group, presents rational summations of transactions of the respective departments of a company. The functions must have the added characteristic of being readily translatable into regulatory accounts. The system must be so designed, in other words, that the translation of the functions into commission accounts can be accomplished without the burdensome labor of extensive cost allocations and apportionments. In most cases the expenditures accumulated under the respective functions must be chargeable in whole to specified prime accounts. Only in special cases should the accounting department apportion the aggregate cost of a given activity over several prime accounts.

Functional Accounting Problems

In presenting departmental expenditure statements in terms of the functions, or activities, a number of knotty problems must be resolved. For example, if all the payrolls of the departments were based on "standing" distributions, the accounting presentations of expenditure statements would be greatly simplified. Many labor costs, however, are variable and the reporting of costs must be accomplished through daily time sheets which indicate the time spent on various jobs.

The accounting for variable costs, however, can easily be developed to a degree of refinement which makes the cost system burdensome, expensive, and which constantly invites the danger of a breakdown because it transcends the practical demands of business operations. In defining the activities of a given department, therefore, care must be exercised to state the functions in terms which minimize the problem of the distribution of costs. There is, conversely, a danger connected with "standing" distributions which must be guarded against. An employee whose time is reported in accordance with a "standing" distribution sometimes is transferred to other work but the time spent on such work is not reported. It will be discovered that many

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such errors creep into the reporting of costs in connection with "standing" distribution and they are difficult to detect.

A form of auditing of "standing" distributions of costs, therefore, must be designed so that the accounting organization can verify, periodically, the reporting of time of employees whose cost is regularly charged to specific functions. Here again an excess of refinement will not yield commensurate results. The few hours, or perhaps the few days, that an employee, who regularly reports his time to designated and fixed functions, might spend on another job, is probably not worth accounting for as the cost of such other activity. If such an employee is so used only sporadically and for brief periods, the cost of accurate time reporting probably cannot be justified in terms of usable information.

The judgment that should be exercised in connection with the desired accuracy of reporting the distribution of time, however, should be fixed by accounting regulations and should not be left to the individual judgments and interpretations of the operating departments. It is necessary that accounting officers are fully conscious of the degree of error that is permitted in the reporting of costs. The application of judgment in this connection must be uniform and must be based upon a realization of the mechanical involutions of an extensive procedural system. It merits careful attention, therefore, on the part of the accounting administrators responsible for the system.

Departmental Statements

I have mentioned that in designing the summaries of expenditures which should be presented to the several operating departments, difficulties are often encountered in the attempt to insure a logical and yet adequate presentation. It is of cardinal importance that these departmental statements be so designed that the administrative heads can utilize the information presented for all regular management purposes. Department heads, therefore, should have a voice in the design of such statements. The accounting officers are immediately confronted with the fact, however, that tastes and habits vary so greatly that it is difficult to get even two department heads to agree upon a similar presentation.

For companies which are completely departmentalized, the problem of presentation is relatively simple and usually includes only the difficulty of presenting the costs of service departments in a manner which does not obscure the responsibility for expenditures. Usually companies which include wide rural areas and a number of small urban communities, however, have an organization based on a mixture of geographical and functional responsibilities. The presentation of adequate expenditure statements for such companies, in some instances, involves troublesome syllogistic problems because it is difficult to determine which authority, functional or geographical, is dominant.

Expenditure summaries must be designed to indicate both geographical and functional responsibilities. For example, it is important to know the total engineering expenses for a

company in a given period. The responsibility for engineering activities, however, may be divided so that, for minor plant additions, usually "outside" plant, it is lodged with the "geographical" administrators, while the engineering for power stations, the transmission system and important distributing centers is centralized under the officer who has functional responsibility for this activity. Engineering expenditures, therefore, should be shown both as an aggregate expense of the company and at the same time should be detailed sufficiently to indicate the divided responsibility for these incurred costs.

In the cases of companies which include several utilities, principally electric and gas, problems of expenditure presentation are further enhanced because the well-known problem of distributing joint costs over two or more utilities enters into the considerations. If such companies segregate completely the utilities departments, the problems of joint costs are confined to the allocation of general and administrative expenses. If, however, the operating departments are not segregated completely, then the questions of joint costs of engineering, sales, accounting, transportation and other similar joint costs must be considered in the presentation of the departmental expenditure statements. Whenever the presentations of expenditures involve allocations and apportionments prepared by the accounting departments, it becomes difficult for the operators of the departments involved to recognize their costs; and to the extent that service charges are included from service departments, it is impossible for them to control directly the magnitude of the total expenditures.

As a matter of fact, the character of the organization constantly interposes itself in the attempt to present clear and logical departmental expenditure statements in the utility business. It is sometimes difficult to impress a management with the fact that accounting costs are often increased substantially because of the lack of definite lines of authority in the organization in connection with an attempt to prepare statements of costs of subdivisions of a company.

Construction Activities

Another difficulty of a similar character is injected in the cases of utilities which engage in construction activities as well as in regular utilities service operations. The entire problem of joint costs is involved again in these instances.

It is, perhaps, impossible for a utility to be so organized that all of the construction activities can be segregated into departments the sole duties of which are confined to these activities. Such an organization would, perhaps, be economically unsound. To the extent, therefore, that construction activities involve engineering, transportation, purchasing, accounting and other operating departments, the accounting departments are faced with an intricate problem of the allocation of joint costs. From the level of departmental burden through to the level of administrative and legal expenses, the question of the proper bases for the allocation of such costs is a recognized problem and I will merely indicate

here that in the construction of functional and cost systems for utilities, the allocations of costs between construction and operating activities introduce added difficulties.

Perhaps the fundamental problem involved in designing the procedural system for such a company is the development of a controlled reporting system which permits of accurate recording of the direct charges to operating and construction activities, respectively. There is no need to call attention to the fact that the well-known vehicle of work, or job orders, is generally used for the purpose of summarizing direct charges to construction activities.

Field Accounting Instructions

Functional activities should be defined, therefore, so that the direct charges to operations can be summarized similarly. In this connection, I believe that it will repay the accounting officers of the companies which construct a substantial portion of their own plants to review the construction and operating activities of those departments which are engaged in both functions in considerable detail and to prepare field accounting instructions which outline the activities pertaining to each function and indicate the differentiation between operating and construction activities.

The preparation of such instructions is tedious work and the details encompassed can be exaggerated easily to the point of practical inefficiency. Yet, I am persuaded that such instructions can be prepared in more detail than is generally admitted by accounting organizations and that, if prepared jointly with the operators, they will relieve the operating administrators of a considerable portion of the onerous work in connection with reporting expenditures on activities. They will yield also a satisfactory standard for controlling the accuracy of direct reporting. On the basis of experience, I am aware that this is a difficult undertaking, but, as I have stated, I am convinced that such instructions are an effective tool for simplifying the reporting problems of the operators and, both in their preparation and application, are a valuable instrument of information and control for the accounting organization.

It can be recognized readily, furthermore, that when a utility company performs both construction and operating activities, the segregation of the operating expense portion of the latter activities is a major accounting responsibility. The entire burden of overhead costs of such operating departments (including superintendence, supervision, clerical costs, vacations, lost time) must be allocated to construction and operating activities respectively on a demonstrably sound basis.

Usually, I believe, direct labor charges present a sound and simple basis for this allocation. Whatever the basis is, however, the determination of the allocation of costs is an accounting function and should be performed by the accounting organization. If, therefore, an operating department performing both functions is presented with a statement confining itself to the operating expense portion of its activities, the question of the competence of such a statement for the control of expenditures immediately arises. I be-

lieve it will be found that such a department can control its costs more easily with a statement which includes total expenditures rather than only the expenditures for the operating expense portion of its activities. I have become convinced, therefore, that departmental statements should be prepared to include the total expenditures of operating departments rather than merely their operating expense portions in order to provide an effective tool for cost control. It might be helpful to indicate in such statements the operating expense portions by functional activities, but I doubt the efficacy of the latter for purposes of cost control.

Similarly, as I have already indicated, I believe that the cost of the service departments' charges to other departments may be indicated to the end users of the services, but I doubt whether the receiving departments can aid materially in controlling the costs of these service departments. I believe a more effective cost control of such departments can be obtained by furnishing the administrators with expenditure statements which include the costs of all of their activities and that the real control of the costs of such services can be effected only by direct supervision.

After the decisions have been reached with respect to the presentation of departmental expenditure statements, there remains the possibility of utilizing the revealed departmental costs in connection with, and in support of, the income statement.

Income Statements

It is well recognized that income statements of a utility include substantial costs which are not directly controllable by the operating departments. Such items as depreciation, taxes, purchased power or gas, amortization of special facilities and, of course, interest and fixed charges represent a large portion of the total expenditures of a utility company and, yet, are not controllable by the operating departments. Operating and maintenance costs, however, are determined largely by their operations. Intelligent and rational details of such costs, therefore, should be prepared to provide the officers not only with significant information relating to their character, but also with indications of the departments in which they have been incurred.

Schedules attached to the income statement listing the expenditures of the major departments of the company can be prepared readily to yield not only sufficient detail to indicate the character of these costs, but also to show the incidence of responsibility for their incurrence. I believe that it is generally recognized that an attempt to control operating and maintenance expenditures of a utility company cannot be accomplished effectively by statements of the cost of "maintenance" and other "operating" segregations formalized in the legalistic classifications of accounts of regulatory bodies. Maintenance costs, for instance, are often incurred in connection with work on construction projects. It is sometimes difficult, if not impossible, for operating departments to distinguish between so-called maintenance costs and construction costs because of the similar physical character of the work involved. I believe, therefore, that an analysis of the total expenditures of the departments which incur "operating and

maintenance" costs, among others, provides a more intelligent and effective tool for the control of such costs than can be achieved first by scrambling the contributions to these costs by the several departments into the standard classifications of accounts and subsequently analyzing these prime accounts into costs of functional activities.

Schedules of details attached to the income statement, therefore, I believe, are not of maximum informative value unless they include not only the operating expense portions of expenditures of the departments, but also their total expenditures. Any department can identify readily its own operations from the reflection of the results of its total activities, and, in my judgment this is the way to control the costs of the activities of a company. It does not require operators to become accounting technicians to explain the results of their operations and it makes difficult the employment of the "dodge" sometimes resorted to by operators of shifting the costs between construction and operations in a manner most convenient to the exigencies of momentary circumstances.

The schedules supporting the controllable operating costs of the income statements should, for completeness, also include the cost of all materials and supplies charged directly to job orders. Thus they effectively indicate not only the details of operating expenditures, but also the correlative construction expenditures for the accounting period in question. The schedules supporting the income statement should, furthermore, be so constructed that the departmental expenditures listed can be traced readily to the total expenditures reflected in the departmental statements which, in turn, are supported by the charges to the functions or activities of the several departments. The details that might be desired from time to time to explain variations in expenditures of the departments are thus classified in a manner which makes them easily available for any analysis desired.

Peculiar Cost Problems

In indulging in these observations on functional and cost accounting methods for utilities companies, I have not attempted to present more than a very brief outline of such a system together with some problems in connection with the presentation of cost summaries. I have not attempted to discuss at all the peculiar cost problems inherent in utilities operations with respect to their theoretical implications. It would be interesting to discuss, for instance, the allocation of indirect construction costs to utility plant and the bases for such allocations. These problems, however, are not peculiar to a particular accounting system, but must be recognized in the design of any accounting system. I have merely tried to outline one such system with particular emphasis upon the presentation of the results of summarizing the costs of a utility company in accordance with defined classifications of activities fitted to the particular needs of the company. I believe a clear presentation of such costs based on an accounting system especially designed for the needs of a given company can be used effectively for the control of total expenditures.

Convention Calendar

JUNE

- 3-5 •A. G. A. Joint Production and Chemical Conference, Hotel Pennsylvania, New York, N. Y.
- 4 •A. G. A. Southwest Personnel Conference, Blackstone Hotel, Fort Worth, Texas
- 4-7 •The Institution of Gas Engineers, Annual Meeting, London.
- 6 •A. G. A. Mid-West Personnel Conference, Kansas City, Mo.
- 10-12 •Public Utilities Advertising Association, Atlantic City, N. J.
- 11-12 •Gas Appliance Manufacturers Association, Annual Meeting, Drake Hotel, Chicago, Ill.
- 12-13 •Swedish Gasworks Association, Gateborg, Sweden
- 17 •Natural Gas Investigation, Washington, D. C.
- 19-21 •Canadian Gas Association, 39th Annual Convention, Manor Richelieu Hotel, Murray Bay, Quebec
- 24-28 •American Home Economics Association, Public Auditorium, Cleveland, Ohio
- 24-28 •American Society for Testing Materials, 49th Annual Meeting, Hotel Statler, Buffalo, N. Y.

SEPTEMBER

- 9-11 •Appalachian Gas Measurement Short Course, West Virginia University, Morgantown, W. Va.
- 10-12 •Pacific Coast Gas Association annual convention, Fairmont Hotel, San Francisco, Calif.
- 12-13 •Midwest Industrial Gas Council, The Radisson Hotel, Minneapolis, Minn.

OCTOBER

- Wk. of 7th •American Gas Association, 28th Annual Convention and Exhibition, Atlantic City, N. J.
- 7-11 •34th National Safety Congress and Exposition, Stevens Hotel, Chicago, Ill.

NOVEMBER

- 11-15 •National Hotel Exposition, Grand Central Palace, New York, N. Y.
- 18-22 •National Metal Congress and Exposition, Atlantic City, N. J.

DECEMBER

- 2-6 •American Society of Mechanical Engineers, New York, N. Y.
- 2-6 •National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York

1947

MARCH

- 20-21 •New England Gas Association, Boston, Mass.

Residential Gas Section

J. J. QUINN, Chairman

WALLACE M. CHAMBERLAIN, Vice-Chairman

F. W. WILLIAMS, Secretary

"CP" Is Your Baby

BY JAMES I. GORTON

*"CP" Promotional Director, Gas
Appliance Manufacturers' Association,
New York, N. Y.*



James I. Gorton

BEFORE I start discussing the sales promotion programs being planned to help you increase the sale of better grade gas ranges built to "CP" standards in 1946 and 1947, I want to give you my definition of sales promotion, so we can all at least start off at the same place, no matter how far apart

we may be when we end up.

Many people think of sales promotion in terms of advertising, window displays, printed literature, and fantastic schemes born of a fertile mind in the dark of the moon.

To me, sales promotion is far more than that. To me, sales promotion is just what it says—promotion of sales. Promotion of sales, yes—but promotion of sales at a profit. In other words, in my mind, the function of sales promotion is to increase sales and net revenue at the lowest possible cost.

When you look at sales promotion that way, it takes it out of the hands of a couple of guys sitting in an office dreaming up wild-eyed schemes to startle the public into buying what you have to sell. When you look at sales promotion that way, then sales promotion encompasses every phase of your business. In reality, it becomes not sales promotion but customer relations designed to increase net revenue.

Integrated Business

No one part of the gas utility business can be separated and set aside from any other part. For example, the way your service department adjusts existing appliances and new appliances has a distinct bearing on how easily you increase your loads through existing appliances, how many new appliances you sell at a profit, and how long those appliances stay in use. How your accounting and credit departments handle Mrs. Murphy when she comes in will reflect in a large degree on how Mrs. Murphy acts when a dealer salesman raps on her door and says—"How about a new gas range today, lady?" How the newspaper editor, the chief-of-police, and everyone else in your community feels about

Presented at Mid-West Gas Sales Conference, St. Paul, Minn., April 9, 1946.

your company's policies and activities will have a distinct bearing on how successful you can be in increasing sales and profits at the lowest possible cost.

This may all seem a little academic, but I mention it because too frequently promotion of sales has been put over in a corner by itself and segregated from other phases of business. I mention it because I want to suggest to you that to increase the use of gas and the sale of appliances at a profit, and thus increase your net revenue at the lowest possible cost, you must plan to coordinate all your company's activities into your sales efforts before you launch on the expanded programs you plan for the days ahead.

Sales Promotional Objectives

To be successful, your sales promotion efforts must be designed to accomplish three things:

1. Maintain present revenues.
2. Increase use of gas through existing appliances.
3. Sell new uses for gas through new appliances.

With these objectives in mind, let's take a look at where we are, where we want to go, and how we are going to get there.

Here's where we are in the gas range business today. Sixty per cent of the 20,900,000 women in the U. S. and Canada who have chosen gas for cooking—2 out of 3 homes on most gas company's lines—are using broken-down, old, inefficient ranges—ranges that are 8, 10, 15 and 20 years old. Sure these ranges cook. So will a fireplace, if you know how to work it. I think it is a great tribute to American and Canadian housewives that they can produce as good meals as they do on the rusty, clogged burners; burned out ovens; and fire-brand broilers that they have to use. Only through years of experience in learning the individual eccentricities of some of these old hot-boxes could any woman cook 3 meals a day that her family would eat.

Many people in the gas business think of

electricity as being their chief competitor. Ladies and gentlemen, electric competition is peanut competition compared to your real competition. Your real competitors are the 12,500,000 old gas ranges that three times a day, day after day, week after week, month after month, and year after year, stand in those 12,500,000 homes and tell 12,500,000 women that gas cooking is dirty; that a gas range blackens pots and pans, walls and ceilings; that gas broilers are smoky, dirty, hard to clean, and hard to use; that gas ovens are difficult to light, and bake cakes which come out, as Carl Sorby says, "looking like old Mexican hats." There is your real competition. Those are the dogs that are biting the hands that feed them. Those are the termites that are eating away the very foundations on which your business is built.

Remember back in the days when the Model "T" was the fastest selling car on the market? Mr. Ford built his business by creating a low-priced automobile that was economical, flexible, easy to operate, had low up-keep costs, and gave dollars and cents value. And then along came Chevrolet and Plymouth. They dressed up the dashboards; they put a little "chrome" on the fenders; they talked about easy riding, beauty and eye appeal; they talked about modernity and pride of ownership. They gave the public a little of the luxury that every one of us wants and dreams about. What happened? Ford sales slipped to third place.

Chevrolet and Plymouth were not the competition that pushed Ford into third place. Ford's chief competitor was the "fliver" idea he helped to sell, and which millions of old Model "T"'s rolling over the road, kept on selling.

Penalty of Pioneering

Perhaps being there "firstist" with the "mostist", is the way to win a war. When it comes to a business like ours, and like Ford's, being there "firstist" with the "mostist", can become an obstacle and a handicap, if you are not careful. You can call it the penalty of pioneering and of leadership, I guess. But as long as people interpret gas as a fuel by these 12,500,000 old ranges that did such a swell job years ago, we have a somewhat difficult reputation to live down.

In one of the toughest competitive areas that I know of, a survey made in 1944 showed there were 63,000 gas ranges and 60,000 electric ranges in use. Forty-three

per cent of these gas ranges are more than 10 years old—43 % are veterans of a bygone era standing in their impotent solitude waiting for the rust to eat away their legs so they can be carried away to the quiet, peaceful Valhalla where all old gas ranges go—the junk pile. And in the homes of these pathetic old creatures 60% of the housewives say they are fed up with the old style top burners, the fire-eating broilers, the cake-raining ovens, and plan to change to clean, fast, automatic electric ranges as soon as possible.

And as you read further in the study made in this community in 1944, you find that 70% of the 63,000 gas range users said they were not familiar with modern gas ranges, and 67% said they had never heard of "CP."

That's bad. But every cloud has a silver lining, and this report has one too. Because digging deeper, the researchers found that while the preference for electric ranges was 3 to 1 among all of those interviewed, among those who had seen and heard about a gas range built to "CP" standards, preference for electricity was only 1.5 to 1. Knowledge of a modern gas range doubled the number of women who said they would buy a gas range. The brightest note of all was that gas users who had cooked on both a modern gas and a modern electric range, said by 4 to 3, that they would select gas. In other words, knowledge and use of a modern gas range built to "CP" standards changed the preference trend from electricity to gas in an area dominated by electricity.

"CP" As a Buying Standard

As this report points out, the evidence is quite clear that knowledge of modern gas ranges built to "CP" standards is a most important influence leading to the selection of gas for cooking. And so, informing our customers about the features and advantages of a modern gas range built to "CP" standards should be an important plank in our sales promotion platform.

Two other dramatic conclusions were brought out in this comprehensive survey. One is that families in younger age groups are the most subject to change in cooking appliances and are most susceptible to promotion. That's pretty obvious, and it's a good thing to remember. For in this group are the home builders and new home-makers—the 3,000,000 G.I. families—the pace-setters and the styles makers of tomorrow. So our promotion should be concentrated on getting 'em young and keeping 'em sold.

The other conclusion from this survey, which I want to call to your attention, is that the buying appeals which the gas industry has been stressing for so long have the least important influence upon buyers in selecting a new range. This is the group of advantages referring to gas as being economical, faster, and easier to regulate. The particular group of advantages which the electric industry has been bragging about, is the most important influence upon buyers in selecting a new range. This is the group

of advantages referring to electricity as being cleaner, free from odor, automatic, healthful, etc.

Only 52% of the people interviewed in this survey said they would buy the kind of a range they believed superior in speed, flexibility, etc., while 82% stated they would now buy the kind of a range which they think excels in cleanliness, automatic controls, etc.

I point this out to you because it looks as though we will have to change our sales appeals if we are going to accomplish successfully our job of maintaining revenues, increasing use, and selling new appliances at the lowest possible cost. And that, perhaps, should be our next objective.

We have to promote and sell automatic, clean, cool, care-free cooking on ranges built to "CP" standards. We have to give our customers what they want if we expect them to lay their money on the line and buy what we have to sell.

Then, to get our story to our customers, we must have more and better salesmen knocking on our customers' doors—telling the story of clean, care-free cooking with automatic gas ranges built to "CP" standards. To do this successfully we must enlist the aid of the 74,000 dealers who are willing to work with us if we can show them how to make more profits.

Dealer Participation

They are the dealers that sold approximately 70% of all the gas ranges produced in 1941. Every one of them is worth the time and energy it takes to cultivate them.

Some months ago we made a study of dealer participation plans in an attempt to determine what makes the successful ones work so well year after year. After analyzing 15 to 20 plans and checking the sales results, it became crystal clear that there are just three factors essential to a successful dealer program. These factors are so fundamental and so simple that we call them the "A," "B" and "C" of dealer participation.

Every successful plan is built, first, on a sincere and honest desire on the part of top utility management to make a dealer program work. Second, it is operated by dealer contact men who understand the dealer's problems and have a sympathetic dealer viewpoint. In many of the most successful plans the contact men have usually been former dealers. The third, and last fundamental is, enough of the right kind of promotion and follow-through.

Believe it or not, dealer participation is just as simple as that. Apply these fundamentals to your territory and you won't have to worry about the details, for the details will take care of themselves. Like the pieces of a jigsaw puzzle, the details will easily fall into place as the picture begins to take on its pattern.

And, last but not least of what seems to me the fundamentals of sales promotion, is the planning, organizing, and finally the appropriating the money to do the job. The last of these three—appropriate—is by far

the most important. When I speak of *appropriations*, I am not necessarily talking about large sums of money. I am talking about the amount of money you can afford to spend and keep on spending to do the job which you set out for yourself.

With these fundamentals in mind, I want to tell you what the A. G. A., G.A.M.A., and the individual "CP" manufacturers have and will have available to help you maintain your existing loads, increase use of gas through existing appliances, and to sell new appliances at a profit. It is the most complete set of sales promotion material ever made available to any dealer, any salesman, or any utility in the entire history of the major appliance field.

First of all, we have the "CP" trademark. The "CP" trademark is the only buying guide of its kind in the major appliance field. Stop and think what it means to a woman faced with a maze of new, untried products made on reconverted war plant assembly lines, to be able to have an unbiased buying guide like "CP." Think what it means to a salesman to be able to tell his customers that in addition to the know-how, integrity, engineering ability, and experience of a well-known manufacturer, a range bearing this seal meets rigid, high standards and has been pre-tested by unbiased, world-famous laboratories. No other industry, no other sales group in the entire world has such a program to go to work for them.

Here we are with products that bear famous manufacturers' brand names in addi-

2 OUT OF 3 WOMEN WANT

Automatic Gas Ranges

BUILT TO CP STANDARDS

AND HERE ARE THE MANUFACTURERS WHO WILL MAKE THEM

ALBANY	CHRYSLER
DETROIT JEWEL	ROPER
ESTATE HEATSEAL	TAPPAN
GARLAND	UNIVERSAL
GLENNWOOD	WESTERN HULLY
GRAND	CLARE BROS.
HARDY	GURNEY
MAGIC CHEF	MAYTAG
ORFELD & HERRIT	

Write today for "A NEW KIND OF SALES PLAN" to Gas Appliance Manufacturers Association, 601 East 42nd Street, New York 17.

GAS THE WONDER FLAME FOR AUTOMATIC COOKING

One of the current "CP" advertisements

tion to an unbiased buying guide our customers will welcome with open arms. Here we are with what outside sales' executives call the "soundest merchandising idea in major appliance history." Here we are with two out of every three homes on every street in every town—12,540,000 families needing and wanting a new range. Here we are with products that have every single feature women say they want in cooking appliances. Here we are with the greatest advertising and promotional campaigns ever launched by gas utilities and manufacturers already pre-selling your customers for you. If that isn't a salesman's dream, I never saw one.

Back of the "CP" idea, and back of all your efforts will be more than 400,000,000 national advertising messages a year carrying the story of automatic, clean, care-free cooking into every home in your territory. And this isn't just one advertising campaign. It will be the expanded national magazine advertising campaign of the A. G. A. plus the individual campaigns of every one of the "CP" manufacturers.

Publicity Program

Then to multiply these advertising impressions, a sales-slanted publicity program will reach down to the very heart of the editorial content of every publication your customers read.

This advertising and publicity will be designed not only to sell new appliances but to increase your customer's interest in doing more cooking—using more hot water and making greater use of their refrigerator and househeating units. Why? Because if your customers do not want to cook, they will not be interested in buying a new range. If they do not want to use more hot water, they certainly will not be interested in an automatic water heater.

Hand in hand with the gas industry in this promotion will be the advertising and publicity of the food manufacturers, utensil manufacturers, the kitchen cabinet people, and everyone else whose business future depends upon making people anxious to do more cooking in their homes so that the families in this country can benefit through more nutritious meals—so that the wives of this country can be inspired to take pride in preparing meals that their families will like. This will supplement our publicity and will point out that with new, automatic gas equipment every woman can cook more and better meals and still spend less time in her kitchen.

That's one phase of sales promotion activities which is going to help you increase your net revenues at low cost. Four hundred million advertising messages blanketing every home in every city and town plus hundreds of millions of publicity stories, forming a shower of sales messages that will speed the footsteps of your salesmen and unlock the doors for every dealer in your territory.

Take advantage of this advertising and publicity—tie-in by using the national advertising mats in your newspapers—mail reprints and proofs to your dealers so you can

show them how the gas industry is helping them make more profits. Use reprints and blow-ups in your window and floor displays. Use them as counterpieces—bill stuffers—and as hand-out pieces in your home service demonstrations. Multiply the effectiveness of these millions of sales messages in your community and make every dollar spent pay double returns for you.

And we are not only going to tell 'em and show 'em through national advertising and publicity. There are big, colorful, hard hitting window and floor displays, and newspaper advertising mats from each one of the individual manufacturers for you to use to tie the sales messages down in your community.

There are sales training and product training courses available from A. G. A. and from the manufacturers to help you get organized. Use them with your salesmen, dealers, service men, accountants, cashiers, and everyone else who is going to be important in increasing your net revenue at low cost.

We need more demonstrations to convincingly prove to our customers the advantages of gas and of gas ranges built to "CP" standards.

So we will have sales-slanted "CP" demonstrations for you to use in training your home service departments, and for your home service departments in turn to use in demonstrating the sales advantages of gas and "CP" to your salesmen and dealers, and to your customers. Ready now, from every manufacturer, are experienced field representatives waiting to demonstrate their products and show you how to put each manufacturer's product features and sales promotion material to work for you.

Architects' Manual

The "Architects Reference Manual" is now ready to help you sell your architects and builders and show them how to take advantage of the tremendous profit possibilities in recommending and installing gas equipment.

And that is only part of the story. The New Freedom Gas Kitchen program with all of its excellent material puts a halo around better grade gas ranges and catches the imagination not only of new home builders and remodelers, but of every man, woman and child in your territory. But remember to sell the appliances that are in the halo and not the halo itself.

And we have sound slide films and motion pictures for you to use in sales training and in meetings with the various social groups that are so important in influencing the thinking of your entire community.

And we have billboards and car cards, bill stuffers and counter-pieces waiting for you to use in backing up this nation-wide sales program and multiplying it in the home and at the point of sale. Use them as is, or change them to meet your local conditions—but use them—and like a hurricane that sweeps all before it and penetrates down through the ground you are trying to cultivate, these bill stuffers and counter-pieces can blanket the homes in your community

knee deep with the automatic, clean, cool, care-free "CP" gas cooking story, and form stepping stones that will lead your salesmen and dealers to the profitable sales you want.

And because we want to get them young and keep them sold, your National Promotional Committee is embarking upon a comprehensive program to put a hard selling, convincing and interesting demonstration of the advantages of automatic gas ranges built to "CP" standards into the hands of every domestic science teacher and every domestic science student in this country. This program will consist of a teachers' manual, a students' manual, and a general consumer piece, together with wall charts, recipes, and demonstration techniques. It is, I believe, one of the most important activities ever taken up by the gas industry in their attempt to increase net revenues by maintaining present loads, increase the use of existing appliances, and to sell new appliances.

Supporting "CP" Program

Back up the program by seeing that every school and college in your area has gas ranges built to "CP" standards in its home economics laboratory.

We are working with department stores and other mass traffic organizations to promote and publicize cooking schools. There is tremendous interest in this on the part of the larger merchandising organizations. They know that cooking schools can produce outstanding results. I suggest that you encourage the mass traffic organizations in your community to give consideration to sales-slanted cooking schools, so they can sell more appliances, and so you can increase the interest in cooking and maintain your loads and increase the use of gas through existing appliances.

If you want sales-slanted "CP" cook books designed to tell an automatic gas cooking and a "CP" story, we have them for you to use.

To help you build successful dealer programs there are available digests of the dealer plans which have been successful throughout the country. Write for them then—look them over—adopt them to your conditions—and put them to work.

For your dealers you have sales training courses and product training courses, sales manuals, dealer kits, displays, advertising mats, bill stuffers, and every other item you need.

The "CP" Kit prepared for you to use in getting the "CP" story to your dealers is colorful and complete. It highlights all the activities the gas industry is undertaking to help the dealer make more money. I suggest you get this dealer kit out again and look it over, and then order one for every dealer in your community. They are 50¢ each, and will do an outstanding job for you.

To help sell your dealers on selling better grade ranges, the manufacturers individually and as a group are laying down a barrage of advertising in every important dealer publication. At "CP" headquarters alone we have an advertising schedule that covers the

dealers with 800,000 sales messages a year. Multiply the effect of this advertising by following through and mailing proofs to your dealer. It will pay big returns.

In addition to this, our advertising campaigns and the A. G. A. program puts 800,000 sales messages a year in the hands of home economists in the country—sales messages that will make your job easier and influence every home economist and home economic student from coast-to-coast.

Those are only a few of the things that are available now and that are coming in the immediate future. I can say with confidence that every single sales aid you need will be available to you. When you get back to your office I urge you to sit down and write to the A. G. A., to G.A.M.A., and to your "CP" manufacturer for a complete list of all the material and plans they have for you.

So what? So what good is all this material if it isn't used? So what good is all this material if you don't have the organization and the money to put it to work building net revenues for your company?

Now we come to the last of the fundamentals of our sales promotion platform—that is, "plan and appropriate."

New Business Costs

I want to call your attention to Report No. 4 of the A. G. A. Postwar Planning Committee. In the section of this report entitled "Report of the Minimum Annual New Business Expense to Hold Revenues," it points out that according to studies made, 62% of the New Business Expense incurred in the year prior to the war would have been necessary even though these companies were not trying to build new revenues. It goes on to say that there seems to be a MINIMUM going cost or fixed New Business Expense of around \$1.00 per customer per annum. *Only those expenses in excess of \$1.00 MINIMUM should be charged to acquiring new loads.*

This study is based on findings made by sales managers of gas companies in New England who analyzed their new business expenses and discovered that in 1942 when they had no appliances to sell, and when the entire efforts of the new business departments were aimed at taking care of existing customers, and not one cent was spent in building new loads, their new business expense was one dollar per customer.

In their postwar planning recommendations, managements of these companies accepted these findings and agreed that one dollar per customer of new business expense is essential just to maintain existing loads. The money needed to promote the sale of appliances and in selling new loads will be over and above that one dollar.

This is a vitally important point for both management and sales managers to recognize. I would suggest that when you plan your new business budgets in the future, you first take your lowest new business expense in the past five years and label that "essential maintaining load expense"—an expense you will

have whether you sell anything or not. Then to this figure add the amount you need to build new sales and revenues.

In planning and appropriating for the future, first, set a goal for yourself. I think you will agree that an important part of that goal should be to get out of the homes these old gas ranges which are giving gas cooking and the gas industry such a black eye, and which

are swinging the doors wide open to competition.

After you have decided on what you want to do, and how best to do it, then determine the cost of the organization and the sales promotion necessary to do the job. Then is the time to determine whether or not you can afford to spend the amount of money needed.

(Continued on page 295)

New Freedom Gas Kitchen Plans



W. M. Chamberlain

of Grand Rapids, chairman of the committee and vice-chairman of the Residential Gas Section, presided.

H. Vinton Potter, the program director, reported on the progress of the program to date, a copy of which report will be made available to the gas company sales managers in the near future.

The committee decided to continue its activities regarding the current billboard and car-card advertising program on the New Freedom Gas Kitchen.

R. J. Canniff, sales promotion manager of Servel, Inc., reviewed the Servel Kitchen Planning activity and described their plans for the balance of the current year which included a forecast on the delivery of the Servel Kitchen; the Servel Kitchen field tests being held on a geographic basis, and the various methods of kitchen distribution.

AN enthusiastic meeting of the New Freedom Gas Kitchen Committee was held in Cincinnati, Ohio, on May 6, attended by 18 members of the committee and 11 gas appliance manufacturer executives, gas utility company representatives, and members of the A. G. A. staff.

W. M. Chamberlain, of Grand Rapids, chairman of the committee and vice-chairman of the Residential Gas Section, presided.

Merchandising plans of a number of top-flight kitchen cabinet manufacturers were discussed at the meeting.

The committee decided to produce a New Freedom Gas Kitchen sound-slide film in color which will feature the functions of the "CP" gas range; the gas refrigerator; and automatic hot water services in the kitchen, and will be specifically designed for use among consumer groups.

It was decided to continue the production of the New Freedom Gas Kitchen News Letters and the color-kitchen sheets, and to include a series of New Freedom Gas Kitchen case studies, devoted to the techniques utilized by gas companies in promoting the program. A new blueprint book will also be prepared.

Mr. Potter exhibited the new booklet on the New Freedom Gas Kitchen prepared under the auspices of the National Advertising Committee which will be advertised in the national schedule at 10¢ per copy. Samples of this booklet have already been sent to the gas industry.

The committee recommended to the A. G. A. Copy Committee that the New Freedom Gas Kitchen theme be continued in the national advertising program with particular emphasis on the gas appliances in the layout and copy.

Mr. Potter also presented several miniature kitchens which are being available by several manufacturers from various parts of the country.



Members of New Freedom Gas Kitchen Committee and invited guests at meeting, May 7 at the Hotel Gibson, Cincinnati, Ohio. Left to right, Jesse L. Johnson, R. B. Hurt, W. B. Hewson, John Pankow, James E. Humphreys, Jessie McQueen, A. B. Ritzenthaler, J. C. Sackman, R. J. Canniff, James I. Gorton, H. Vinton Potter, Wallace M. Chamberlain, L. C. Ginn, E. Carl Sorby, Frank W. Williams, Edward Drew, John White, Harold W. Springborn, R. S. Agee, Raymond J. Vandagriff, John E. Bogan, John J. Brandt, and Will C. Grant

Residential Committees in Action

ALL of the Section's committee are actively engaged in completing their current year's programs.

Appliance Financing Committee

The committee is in the process of preparing a printed report devoted to the financing plans which will be available on a national basis to the gas industry from national banks, financing companies and other institutions.

Committee on Dealer Relations

A report stressing the importance of good dealer relations and participation, and including a number of dealer plans successfully utilized by gas companies in various sections of the country is now in the process of preparation.

Domestic Range Committee

This committee has organized a comprehensive promotional program on "CP" gas ranges, to be put into effect when ranges are available in quantity. The program includes the reorganization of the "CP" regional and state managers; the preparation of promotional media for these men, including a sound-slide film, "CP" charts and talks, a promotional portfolio and other material. The effective advertising schedule on "CP" in the dealer press, sponsored by the "CP" Range Division of G.A.M.A., will be continued. The "CP" cookbook is being revised as part of an interim program, with the preparation of a cookbook featuring automatic cooking scheduled for the most opportune time. A Teacher's Manual on Gas Cooking, for distribution to schools and colleges, is being prepared with the assistance of the Promotional Bureau.

The proposed revisions of the "CP" Gas Range requirements, as presented by the Committee on Improving Domestic Gas Appliances, have been approved by the "CP" Range Division of G.A.M.A. and are now being studied by the Managing Committee of the Residential Gas Section, prior to their final adoption by G.A.M.A.

Home Service Committee

The Regional Workshops, sponsored by the committee, were particularly successful and exceptionally well attended. The committee has 4 projects under way, including a questionnaire to Home Service Departments on plans of work and proposals for work as soon as merchandise is available; an outline of material recommended by home service for use in schools as a guide in the preparation of much needed material from manufacturers of gas equipment; a compilation of articles on home service which appeared in the trade magazines for the past

BY J. J. QUINN

Chairman, A. G. A. Residential Gas Section; and General Sales Manager, Boston Consolidated Gas Co., Boston, Mass.

year, and an outline of case studies in at least 10 gas companies of the organization of kitchen planning as it affects home service work.

Committee on Housing

Membership in this important committee is now being completed. One of its most important activities has been the preparation of the "Reference Manual of Modern Gas Service." Arrangements have been made through Mr. Bean at our Washington office to distribute copies of the manual to men in the key Governmental housing agencies throughout the United States.

The committee, at a recent meeting in Washington, presented the Home Planning Bureau Program, sponsored by Surface Combustion Corporation, to members of Housing Coordinator Wyatt's staff, as a means of tying in with the housing program. If this program is approved, it will be of particular importance to the gas industry in the public relations field.

House Heating & Air Conditioning Committee

Recognizing the tremendous demand for gas heat by the consumer, which obviates the necessity of house heating promotion as such, the committee has organized an interim promotional plan designed to educate and sell the architect, builder, heating trade and the public on the merits of up-grading gas heating equipment and its installation. Subcommittees on Promoting All-Year Round Air Conditioning, and Direct Heating have been organized.

New Freedom Gas Kitchen Committee

The committee is continuing its activities in the promotion of New Freedom Gas Kitchens. A meeting of the committee was held May 6 at which its work was reviewed. A brief account of this meeting is published elsewhere in this issue.

Refrigeration Committee

At a meeting of the committee in Evansville, Indiana, March 11-12, the latest model of gas refrigerators was previewed, and the committee made a number of important suggestions regarding the new line. The Gas Refrigeration Product Training Course was discussed and it was decided that the Servel

Sales Seminars be condensed into one manual, including a teacher's script to be utilized in one-day schools. It was further decided that 2500 window displays on gas refrigeration be placed into production. The promotional activities of the committee are to be held in abeyance until the availability of next year's model in the Fall.

Committee on Selection & Training of Sales Personnel

The committee has continued its activities on the production of the specialized sales training course on "Residential Gas Salesmanship." The first three units of the six-unit course will be available by the middle of May of the current year, with the remaining three scheduled for completion by July 15.

A total of 110 orders for the course have already been received from gas utility companies, and it is expected that this number will be substantially increased as the material becomes available.

Water Heating Committee

The promotional program organized at the last meeting of the committee is now under way, and a series of mailings to the gas industry on the relationship between automatic gas water heating and home laundries have already been made. A booklet on this subject is now being prepared through the cooperation of the Promotional Bureau. Work on the "CP" Water Heating Program is progressing satisfactorily.

Window & Store Display Committee

The next issue of the "Window & Store Display Bulletin," which includes photographs of window and store displays used by gas companies, in addition to suggested display ideas and floor layouts, is now being prepared and will be available to the industry in June.

Gas Heating Favored

THE AMERICAN HOME has made a survey of 1,735 of its readers by mail to find what new installations or improvements they will make to their homes. Heating improvement led all the rest with 14% planning to make a new installation, and 9% more who are planning to improve their present heating plant.

Four hundred homeowners are planning to make new heating installations in the next year, the survey showed. Of these, 45% or 180, will install a gas furnace, and 39% or 157, will install an oil furnace. Ten per cent will buy a coal furnace with mechanical stoker and 3% plan a new handfired boiler or furnace. Another 3% plan an electric central heating plant.

Industrial & Commercial Gas Section

HARRY A. SUTTON, Chairman

KARL EMMERLING, Vice-Chairman

MAHLON A. COMBS, Secretary

Building the Commercial Market



Leon Ourusoff

BUILDING prestige and sales in the commercial market has always been the slogan of the commercial man in the gas industry but it takes on a new significance in these times, symbolic of a new era.

As an industry we have done well in the past, in maintaining leadership in the commercial field but we

must reexamine procedures and make some corrections if we are to continue as leaders.

I do not believe, for example, that past resources placed at the disposal of commercial sales departments were always adequate, either in manpower for proper market coverage, or otherwise. There have been cases where coverage of hotels and restaurants was restricted to one man per million of city inhabitants.

Factors in Commercial Selling

The time has come to appraise fully the serious situation facing our commercial business and to reexamine the facts in the light of present conditions:

Our cities are growing and expanding. Unprecedented numbers of appliances are worn out and must be replaced. Commercial establishments are to be remodeled extensively. The design of our equipment is still vulnerable in some respects. Competition has entered the stage of mass production.

These factors alone, point to the inevitable conclusion that our promotional and selling resources must be strengthened. Unless we develop more appropriate means to maintain our leadership:

We shall lose business and fail to acquire new loads.

How many companies realize how profitable our commercial load is?

A recent investigation has shown that:

The net return on investment for commercial business is in the order of 15% compared to about 5% for residential business.

The most profitable business is the *costliest* to lose.

Presented before A. G. A. Industrial and Commercial Gas Conference, Toledo, Ohio, March 29-30, 1946.

BY LEON OURUSOFF

Chairman, A. G. A. Food Service Equipment Committee; Manager of Utilization, Washington Gas Light Co., Washington, D. C.

How big is the business that we have to protect?

In 1944, nationally:	
Residential and commercial sales were	1,106,178 MMCF—100%
Residential (including heating) were	866,849 " — 78%
Commercial	239,329 " — 22%

Let me summarize what has been said so far: the commercial business is our most profitable business; it represents a very large share of the total volume; equipment needs replacement; establishments are ready to remodel; our territories are expanding; competition is pressing from all sides.

Unless these facts are clearly understood and thoroughly absorbed and unless commensurate action is taken by individual companies to overhaul the resources and facilities of their commercial sales organizations, there is not much use talking about building prestige and sales in the commercial market.

Let us assume then that appropriate, new facilities will be developed and see how they can be put to work.

Prestige and sales are predicated upon:

Results—Trust—Promotion

RESULTS are judged by:

PERFORMANCE: fuel, equipment, installation dependability.

CONVENIENCE: ease of operation, comfort, familiarity.

ECONOMY: cost of fuel, maintenance, equipment.

APPEARANCE: design, condition, arrangement.

TRUST means

COMPANY REPUTATION: past record, current position, industry standing.

PROMOTION includes

MARKET COVERAGE: completeness, type, frequency.

QUALITY OF SALES: sales presentation, specialized services.

PUBLICITY: advertising, education, display, demonstrations, campaigns.

TRADE RELATIONS: quantity and type of trade outlets, dealer coverage.

May I venture to state that when each of these factors is developed to our greater advantage, we have achieved prestige and leadership, load protection and load building.

Let us analyse each of these factors;

Performance and Convenience

First, PERFORMANCE. It depends on:

1. FUEL. Our fuel is unsurpassed. *We desire nothing better to sell.*

2. EQUIPMENT. Equipment needs perfecting and upgrading. A gas company can stimulate design improvement by keeping in close touch with manufacturers; by thoroughly studying appliances in the field and testing them in the laboratory; by making constructive and specific suggestions to manufacturers and by promoting the best. Such actions require considerable engineering and supervisory activity.

3. INSTALLATION of equipment affects its operation. It depends on original layout and workmanship. A gas company should improve existing installations, sell modernization and assist in planning new layouts. Such actions involve: very close inspection; engineering and drafting; close cooperation with the trade.

4. DEPENDABILITY means consistent operation under conditions of uniform fuel supply, proper adjustment and good repair. These factors must be kept under constant control and it means better inspection and more service.

So much for performance. Customer's satisfaction hinges also on CONVENIENCE which, in turn, depends on:

5. EASE OF OPERATION which is particularly important today in view of the trend toward labor saving devices and the much more demanding attitude of operating personnel in commercial establishments. Manual lighting of oven burners and watching of flames hamper convenience. There, again, gas companies should concentrate on very close cooperation with manufacturers of equipment and controls, and at the same time reinforce their own technical facilities to bring about effective adaptation of automatic devices to contemporary appliances.

6. COMFORT for workers is increasingly a requisite in modern commerce and industry. The Food Service Industry is on record to that effect. We should do all in our power to improve conditions of temperature, humidity

and air quality in existing kitchens and also insist that proper ventilating provisions are specified on new jobs. None of this can be readily accomplished without a ventilating specialist on your staff and a sales force capable of devoting time to detailed observation of operating conditions of all commercial kitchens.

7. FAMILIARITY with equipment has been an important advantage in our favor. But personnel turnover is much greater today than yesterday and many cooks, returned from military service, are trained in the use of cooking fuels other than gas. Thorough education of operators is an important new responsibility on the shoulders of the commercial men.

We have glanced over performance and convenience. Let us turn to our great protector:

ECONOMY—Nothing to worry about *there* thinks the gas industry! The truth, however, is that while yesterday the economical superiority of gas equipment was universally accepted, today we have frequently to prove it or even to demonstrate it. We must be willing to spend many hours analysing competitive claims on each important job. The effect of demand charges on operating costs, for example, is minimized by competition, and it becomes our task to evaluate accurately and show our customer the real effect of the demand on his bill. It is even becoming necessary to collect and carefully scrutinize extensive billing records of existing competitive installations to understand the true cost of competitive service.

MAINTENANCE of gas cooking equipment is reasonable in cost *provided* that customers can depend on well organized and inexpensive repair facilities, periodical inspections by competent gas company servicemen and on receiving instructions in the proper care of equipment and accessories. Unless our facilities are developed accordingly, the economical maintenance of gas appliances will be challenged.

FIRST COST was in our favor in the past and still is, but price differentials are likely to become narrower because, on the one hand, competition has entered the stage of mass production and, on the other hand, the gas industry expects more automatic, sturdier, probably higher-priced equipment. To offset this situation and to protect our competitive price advantage, gas companies must strive to lower installation expenses by preparing economical installation specifications and helping dealers reduce incidental sales expenses.

Briefly, if we want our reputation for most economical service to survive, our sales efforts and all our facilities including service must be extended and broadened.

We have just examined results. Let us ponder over the word:

TRUST. It means confidence, reputation and prestige of the company and of the industry. Most gas companies, over a period of years, have built up a high and enviable reputation for uninterrupted supply, good service, competence and business ethics. The gas company's word is trusted.

To preserve this high standing in the commercial field, in days to come, we must be equipped to demonstrate to our customers that our business is, in all respects every inch as progressive as and a step ahead of competition. This goes for research, display, demonstrations and sales procedure of all kind. Modern, progressive, streamlined facilities are, today, synonymous of reputation.

We now come to:

SALES PROMOTION. Without it, neither the excellent results obtained from our superior fuel nor the splendid reputation developed by our companies will suffice to protect existing business or produce new load. We face new types of markets, greater in size, because of growing population; more active because of

higher purchasing power; more spread-out because of suburban development; more specialized, because establishments are increasingly leaning toward mechanisation of equipment; more intense because of the great volume of required replacements; and far more competitive.

What, then, are the elements of sales promotion that can help us in coping with these new conditions?

MARKET COVERAGE comes first.

The commercial market is *highly saturated* with gas appliances.

Our defense lines are greatly extended.

Therefore we are:

Vulnerable to *surprise attacks at all points.*
We need complete coverage of our market.

I am not in a position to state or recommend a manpower formula for adequate coverage of your territories but I may suggest an objective:

1. Provide for several calls per year at each hotel, institution, club and sizeable restaurant.
2. Cover all other food-dispensing establishments at least once every two years.

Our dealers do not cover many small eating places which are effective targets for competition, particularly insofar as counter appliances are concerned.

Complete coverage requires good control. A good control method is to maintain a Kardex system containing all pertinent information. Every customer should be entered in the Kardex file. In this manner you have a perpetual survey of your market and visual means of coverage control.

Next to market coverage comes the:

QUALITY OF SALES. By that is meant not only a competent and alert sales force, but a modern technique of sales presentation and business transaction together with the necessary tools, such as, for example:

Attractive customer proposals containing a forceful analysis of gas versus competitive service, including data, pictures and testimonials. Such folders represent a high standard of sales presentation. The office force should be trained in preparing all pertinent material and assembling it.

Furnishing attractive data binders for the use of commercial men and dealer salesmen.

Assembly albums of outstanding installations also for use by company and dealer sales personnel.

Other aspects of "sales quality" that impress our customers and dealers are in the extra services that are performed by engineers and the office personnel in the commercial sales department. Such as for example:

- Surveys of commercial premises (for dealers)
- Preparation of drawings (for dealers)
- Ventilation specifications (for customers who want to remodel)
- Assistance in warehousing (for dealers)
- Expediting procedure (service applications, credit, billing)
- Interceding with municipal authorities (for customers and dealers).

I must repeat, however: these extra services require extra resources and facilities, but

Commercial Gas Representatives Meet



Meeting of A. G. A. representatives and members of G. A. M. A. Hotel, Restaurant and Commercial Gas Equipment Division to discuss the new brochure on commercial gas utilization and equipment which will shortly be presented to gas utilities. Pictured are, left to right, standing: M. A. Combs, A. G. A.; C. M. Jewell, Detroit-Michigan Stove Co.; W. D. Crouch, Robertsaw Thermostat Co.; J. W. McNair, Standard Gas Equipment Corp.; Fred A. Kaiser, Detroit-Michigan Stove Co.; W. Frank Roberts, Standard Gas Equipment Corp.; J. J. Woolverton, Jr., Malleable Steel Range Co.; H. Leigh Whitelaw and Harold Massey, both of G. A. M. A. Sitting, left to right: F. J. Fieser, F. J. Fieser Co.; Eugene D. Milener, A. G. A.; W. H. Frick, American Stove Co.; S. E. Little, American Stove Co.; H. C. Erhard, Standard Gas Equipment Corp.; Arthur R. Pitman, J. C. Pitman & Sons, Inc.; and Paul Musick, Specialties Appliance Corp.

these are cheap in relation to the results that can be expected.

PUBLICITY is the next important factor in promotion. It includes first:

DEMONSTRATION AND DISPLAY. We are entering a battle of fuels. Competition claims equipment more modern than ours. They claim many things and publicize their claims effectively. Our claims, therefore, will no longer always be taken for granted, as in former days. We shall have to demonstrate. Gas companies should be equipped to make experimental installations when they are called to prove their point and when it is necessary to demonstrate new equipment improvements. Modern gas appliances should be displayed at meetings and shows of local restaurant, baking and meat industries. Our speakers should appear at large gatherings of customers, trade and professional groups. This serves the double purpose of good publicity and customer education.

An effective way to combine publicity with dealer enthusiasm and with additional sales is to stage a yearly *kitchen modernization campaign* in which gas company and dealer personnel participate and become eligible for prizes or bonuses. Such an event is preceded or followed by a "Victory Banquet." Special inducements are offered customers during the campaign period. I can assure you that these activities stimulate sales and build prestige.

From here we come to **ADVERTISING.** I don't know whether gas companies pay sufficient attention to direct mail and other forms of advertising in the commercial field. My feeling is that at the present stage of the game all promotional media should be explored to the fullest possible extent. If properly analysed, timed and directed commercial advertising yields a good return on a small investment.

A very real channel of publicity for a commercial department is what might be called "association activities." This, again, requires

time, manpower and other resources more necessary today than in the past. I refer to the systematic participation of commercial personnel in the activities of professional groups, trade associations, engineering and architectural societies, municipal authorities and service clubs.

The participation of competition in such activities is on an extremely wide scale by virtue of the tremendous diversification of their business. We certainly should do everything in our power so that the architect, the engineer and the average business man is aware of our presence and our interest at his meetings.

The last element of promotion that I will mention, perhaps the most important one, is **DEALER RELATIONS.**

While a relatively small number of kitchen equipment dealers serve the average city, they

(Continued on page 295)

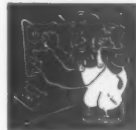
Enters Hall of Flame



D. W. Reeves

A **RECHECK** of the possible candidates for membership in the Industrial and Commercial Hall of Flame discloses the omission of D. W. Reeves, Oklahoma Natural Gas Company, Tulsa, Oklahoma with more than the necessary 25 points when the presentations were made at the Toledo Conference last March. A certificate of life membership in this honorary organization has been awarded to Mr. Reeves.

gas grapevine



the brooklyn union gas boys are at it again—this time it's pickles. during the past few years they have installed 21 kane gas-fired automatic steam boilers for 15 different

pickle manufacturers. these customers have found that gas-fired equipment means speedier and more sanitary operations in making pickles out of cucumbers and that the product keeps its color, taste and size longer than pickles made by old-fashioned methods. all these pickle units together make for a thirteen million cu.ft. load per year—and a lot of pickles.

the industrial and commercial gas section, combs, bourke, smith, marconi, et al, has shifted into high gear on preparations for the fall activities. first on the calendar is our section's program for the a. g. a. annual meeting in atlantic city, october 7-11. frank h. trembly, jr., is chairman of the program committee for the section. we know frank and his committee will do a bang-up job.

john bourke, our new commercial promotion director, is busy on plans for the a. g. a. combined exhibit at the national hotel exposition, grand central palace, new york, november 11-15. that's the place where the commercial gas men shine along with equipment and equipment manufacturers.

not to be outdone, the industrial gas men will have their innings the following week at atlantic city during the national metal congress and exposition, november 18-22 where a. g. a. will have an outstanding combined exhibit covering 5000 feet of floor space. the important date during the week will be november 20, when we will hold the traditional industrial gas breakfast to delight the palates and stimulate the minds of industrial gas men and trade magazine editors. more later on place and speakers.

industrial gas men will have another opportunity to participate in a national show—the national exposition of power and mechanical engineering at grand central palace, new york, december 2-6 where a. g. a. will also have a combined exhibit with manufacturers of equipment in allied lines.

the closing months of 1946 promise to be busy ones for your section staff, and we hope that many industrial gas men and commercial gas men will avail themselves of the opportunities offered to meet with other gas men and equipment manufacturers to exchange views and talk over generally what is going on in this gas business of ours.

a. q. s.

Map Program for Industrial-Commercial Gas



Hard-working session of the Industrial and Commercial Managing Committee

THE Industrial and Commercial Gas Section Managing Committee, Harry A. Sutton, chairman met recently in Atlantic City to hear reports from the section committee chairmen on the progress of the various activities of the respective committees. From the reports presented, it is evident that the

section committees are making good progress towards the objectives set for this Association year. The Managing Committee further discussed plans for participation in national expositions this Fall through combined exhibits, and made other plans which will carry over into the 1947 section program.

Technical Section

LESTER J. ECK, Chairman

C. S. GOLDSMITH, Vice-Chairman

A. GORDON KING, Secretary

Automatic Loading of District Governors

PROBABLY the most serious problem now confronting the distribution engineer is pressure reinforcement of existing low pressure systems to handle adequately the greatly increased loads in residential sections due to the rapidly expanding house heating load. Distribution systems which were designed for ordinary domestic cooking and water heating service are now called upon to carry this new load.

Gas house heating has been greatly increased in popularity by the recent oil rationing and the shortage of solid fuels. As an example, in Detroit there were added to our lines 1,900 units in December and 2,600 in January. Two-thirds of the installations were conversion burners placed in houses in areas already built up. Unfortunately, these installations have a habit of "bunching together," resulting in local areas of poor supply.

Reinforcement of such areas is difficult,

Presented before Joint Distribution & Motor Vehicle Conference, Hotel Stevens, Chicago, Ill., April 15-17, 1946.

BY FRANK J. WOOLFENDEN

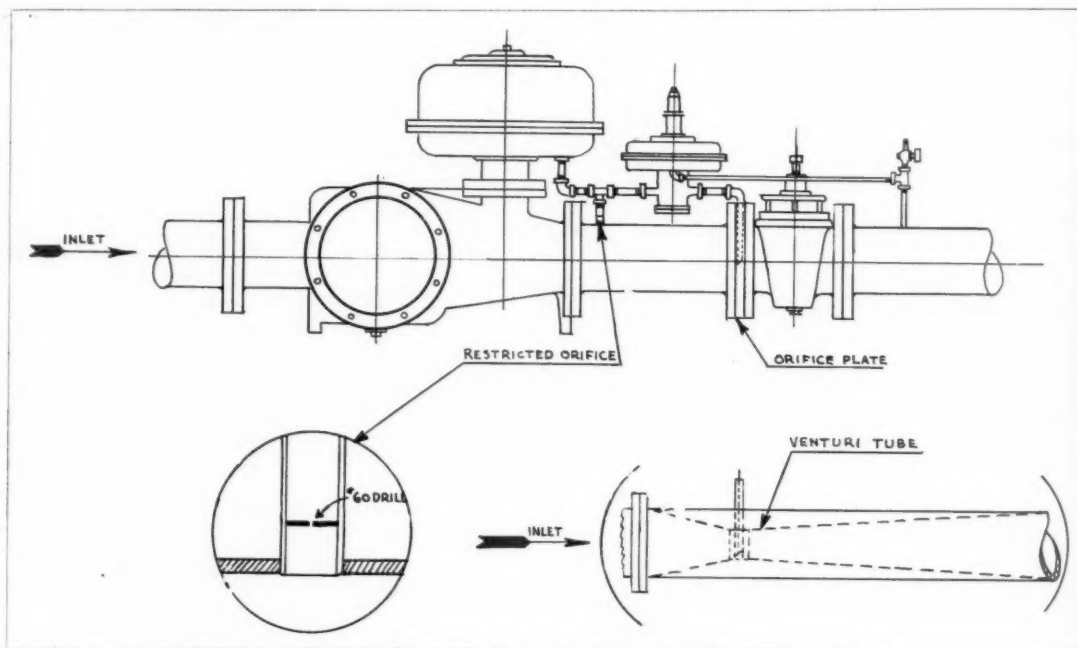
*Engineer of Distribution Design
Michigan Consolidated Gas Company,
Detroit, Michigan*

especially now with the shortage of pipe materials. In some of these cases an automatic governor loader should be of advantage. It has been our practice to install loaders in district governors in sections where large house heating loads are developing.

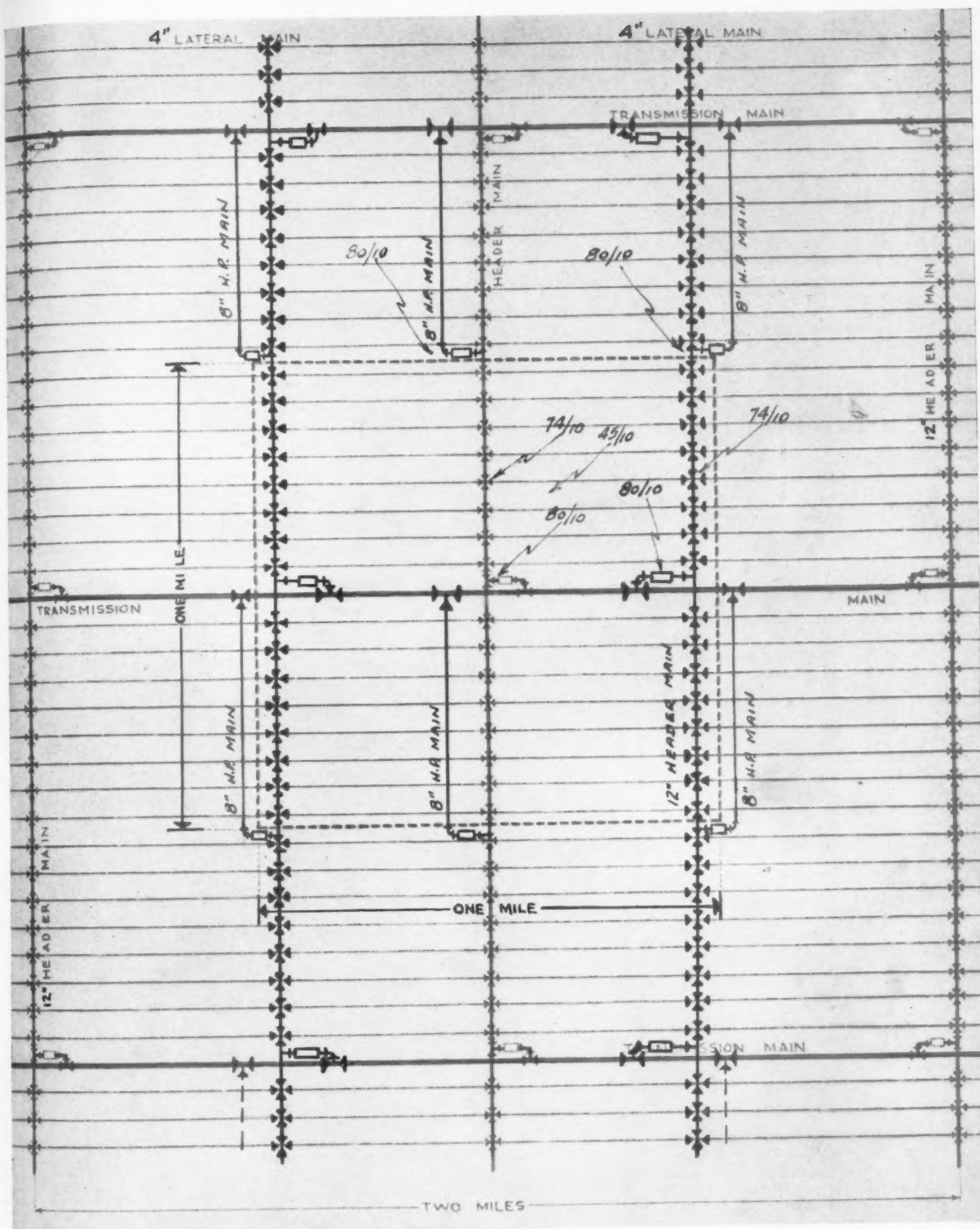
As a result of quite extensive experiments made in the use of natural gas, we have found that a pressure range of 3" at consumers' appliances can be tolerated, although some complaints were received. A range of 4" resulted in numerous complaints with almost all of the complaints coming from areas of low pressure. We isolated a section of the system containing approximately 6,500 customers and deliberately raised and lowered pressures throughout this district. We found

that the customer complaint situation became serious above 8" and below 4.5", showing that a pressure range of 3.5" was tolerable with correct burner adjustment. In the interest of good service we attempt to limit the pressure range on any service to 2", but do not always succeed.

In a distribution system a pressure drop of only 2" between high and low points would, of course, seriously limit the capacity of the system to deliver gas. We are confronted with two problems (1) as an essential to good customer service to maintain a small pressure range on consumer appliances and (2) from a distribution capacity standpoint to allow as large a pressure drop as possible. The automatic loader helps to solve this problem. It would operate satisfactorily in a system supplied by only one governor. If an off-peak pressure of 6.5" is maintained at the outlet of a district governor and this pressure is increased to 8" during peak hours pressure range near the governor on the consumers' appliances would be 1.5". At



Sketch of loading device with EMCO L.P. governor



A diagram showing conditions existing in Case 5, where the capacity is 435,000 cu. ft./hr. Based upon average input of house heating units in Detroit of 126 cu. ft. per hour, and using 90% diversity for the square mile, Case 5 would provide capacity for 75% house heating saturation.

the low point in the system, pressures would vary from approximately 6.5" off-peak to 4.5" at peak hour, or a range of approximately 2". However, distribution pressure drops during peak hour would be from 8" to 4.5", or 3.5". The capacity of a system is 33% greater with 3.5" pressure drop than with 2".

Our experience with loaders has been limited to that type which depends upon the velocity of the gas for its functioning. This is the type employing the well-known principle of the venturi tube.

A brief discussion of what we call a "typical square mile of a low pressure gas distribution system," together with a description of our system as a whole, will make the discussion of our experience with automatic loaders more intelligible.

In designing our low pressure cast iron distribution system, we have adhered as closely as possible to certain standard specifications which have been set up from studies of the typical square mile of gas supply.

Distribution Square Mile

Briefly, this typical square mile consists of 17 residential streets on which are 4" cast iron lateral mains, fed by a 12" header running at right angles to the lateral mains. A 12" district governor feeds the 12" header, as shown in Case 1. It is assumed, of course, that the high pressure transmission mains, necessary to supply the district governors, have been run.

The total number of services in a saturated square mile is estimated at 3,600. This figure was built up from actual count of lots in a typical square mile. The ratio of consumer to service in our system is 1.2, giving 4,320 consumers per square mile, saturated, which at 12 cu.ft. per hour per consumer would give a peak hour consumption per square mile of about 52,000 cu.ft. for domestic and water heating, but with no house heating load. However, the square mile, in itself, rarely ever entirely built up solidly, and the demand, including some commercial load, might be around 50,000 cu.ft. per hour of 1,000 B.t.u. gas.

A statement of main materials, hourly capacity and progressive reinforcement of the square mile, assuming a uniform loading when distributing a 0.70 gravity gas, follows:

Case 1

Pressure range—65/10ths to 45/10ths
Capacity—90,000 cu.ft.
Materials—
5,280'—12" cast iron main
89,760'—4" cast iron main
1—12" governor

Case 2

Adding a loading device
Pressure range—80/10ths to 45/10ths
Capacity—120,000 cu.ft.
Materials—(In addition to 1)
1—loading device

Case 3

Feeding the 12" header at one-half mile intervals
Pressure range same as 2

Capacity—162,000 cu.ft.
Materials—(In addition to 2)
2,640'—8" main
1—governor and loading device
Case 4

Reinforcing the 4" lateral at one-half mile intervals

Pressure range same as 3.
Capacity—340,000 cu.ft.
Materials—(In addition to 3)
5,280'—12" main
1—12" governor and loading device
Case 5

Reinforcing the one-half mile headers at one-half mile intervals

Pressure range same as 4
Capacity—435,000 cu.ft.
Materials—(In addition to 4)
2,640'—8" cast iron main
1—12" governor and loading device

Based upon average input of house heating units in Detroit of 126 cu.ft. per hour, and using 90% diversity for the square mile, Case 5 would provide capacity for 75% house heating saturation.

In Detroit the main highways are located at mile intervals and form a perfect grid-iron. As a general rule, the 12" headers are placed in the east and west streets and the laterals in the north and south streets.

In addition to the older, built-up sections, we have close to 75 square miles which are in various stages of development, some up to 75% saturated and others not so well developed, but where building activity will start soon. In all of these, we are adhering as closely as possible to our specifications as set up in the typical square mile. The 12" headers vary in length from one continuous header 15 miles long to short ones. The older sections were designed for 530 B.t.u. gas, but considerable additional capacity was realized in these areas when we started using 1000 B.t.u. gas.

We have found considerable "bunching" of the house heating units on certain lateral mains and Case 3 (feeding the headers at half-mile intervals) is not as important as Case 4 (feeding the laterals by running 12" headers at half-mile intervals). We have several miles of this type of reinforcement.

The square mile containing the greatest house heating load now has 3,800 consumers and 1,500 house heating units installed, with an average input of 166 cu.ft. per hour, or a peak hour demand on maximum days of 225,000 cu.ft. house heating and 45,000 cu.ft. domestic, or a total of 270,000 cu.ft. For peak hour house heating, we use a diversity of 80% for the system as a whole, 90% for a square mile and no diversity for laterals having a one-way feed.

PRODUCTION AND CHEMICAL CONFERENCE IN NEW YORK, JUNE 3-5

A **SPLENDID** program that will be of great value to technical men has been arranged by the Gas Production and Chemical Committees of the A. G. A. Technical Section for their joint conference at the Hotel Pennsylvania, New York on June 3, 4 and 5. An attendance of 500 is expected at this first major postwar conference.

Dr. C. W. Wilson, Consolidated Gas Electric Light and Power Company of Baltimore, chairman, Chemical Committee, will preside at the morning session on June 3. His program of speakers includes Everett J. Boothby and H. Carl Wolf, A. G. A. president and managing director, respectively. Papers on enriching oils, coal production, water gas set capacity and tar dehydration will be delivered by able speakers.

The first afternoon session will be conducted by R. VanVliet, New York and Richmond Gas Company, chairman, Gas Production Committee, and will feature a symposium on liquefied petroleum gases, presented by experts in this fast-growing field. European gasification processes will be outlined by Captain E. S. Pettyjohn, director, Institute of Gas Technology. Dr. Gauger, Pennsylvania State College, will give a paper on resins.

Hudson W. Reed, A. G. A. vice-president and chairman, Manufactured Gas Department, will preside at the morning session on Tuesday. The Association's mixed gas research program will be described by W. R. Fraser, Michigan Consolidated Gas Company, vice-chairman, Chemical Committee. P. T. Dashiell, The Philadelphia Gas Works Company, chairman, Gas Production Research Committee, will report on research. Papers at the Tuesday morning session will cover organic sulfur, flash pulverization, reforming and catalysts. Four off-the-record luncheon conferences will be conducted on Tuesday, discussing subjects of particular interest.

A sound slide film will be shown at the morning session on Wednesday, followed by papers on blending properties of volatile coals and underground structure corrosion. Reports of several subcommittees will be presented on Wednesday, at both morning and afternoon sessions.

The average house heating load per unit for the system as a whole is 126 cu.ft. per hour, or a system demand of approximately 100 cu.ft. per hour per house heating unit. We now have 60,000 house heating units on our lines, resulting in a house heating load of 6,000,000 cu.ft. at peak hour.

The maximum hour of the house heating load occurs between 8 A.M. to 9 A.M., and is equal to 5.8% of the 24-hour load, the minimum hour occurs between 11 P.M. to 12 midnight and is 2.7% of the 24-hour load. We have developed hourly percentage curves of the maximum day for house heating, industrial, residential and commercial loads on maximum days, and find these curves of extreme importance in developing our high pressure transmission main system.

The residential and commercial load dovetails nicely with the house heating load. However, we find the industrial peaks occur during house heating peaks. As practically all of the industrial load is taken directly from the high pressure transmission mains, the load on the low pressure system is not affected. Each house heating job is spotted on a distribution map, showing by symbols three ranges of input, up to 150 cu.ft. per hour, 150 to 300 cu.ft. per hour and over 300 cu.ft. per hour.

loader Experiments

Back in 1928 we started experimenting with a loader which depended upon the velocity of gas through a venturi tube placed in the main at the outlet of the regulator for pressure boost. These venturi tubes were made in various shapes and sizes. The float line of the regulator was connected at a point just beyond the throat of the venturi.

However, difficulty was experienced in controlling the boost. Pressure would continue to build until the regulator was wide open. This condition was remedied by placing a $\frac{3}{4}$ " service regulator in the float line close to the venturi throat. A connection was then made from the float line at a point between the service regulator and the main regulator directly to the outlet of the main regulator. A needle valve was placed in this connection to permit a small flow of gas through the service regulator to the venturi throat. The service regulator was set to close at 8.0" and pressure at the outlet of the main regulator would remain constant at 8.0", limiting the boost to this pressure.

For simplicity and ease of installation the orifice plate was substituted for the long venturi tube. The plate did not give the gradual increase in pressure that the venturi tube gave but it functioned in a satisfactory manner.

Considerable improvement has been made in the mechanical parts of the loader since the first models were developed. The company making them has now developed a loader using the orifice plate and a small venturi connected directly to the float line and placed in the center of the orifice plate. As the pressure difference developed follows the law of the square of the velocity of the gas passing through the plate the

proper size of the plate orifice is very important. If too small the regulator will load continuously, and if too large difficulty will be experienced in obtaining any boost. Due to rapidly increasing loads some of our governors are equipped with loaders having orifices in the plates which are too small and will have to be replaced.

A loader should be so constructed that the orifice plate is readily and easily interchangeable so that various size orifices can be tried out. This is especially important where large house heating loads are rapidly developing.

Our experience with loaders to date has not been wholly satisfactory. On dead-end systems supplied by one governor or on systems loosely connected we have had excellent results. However, on systems where a group of governors feed into a common 12" header, one or two of the governors will "hog" the load at off-peak hours shutting off others entirely. Such a condition is not serious from the customers' viewpoint but is undesirable from the viewpoint of reduced takes from certain transmission mains. The over-all advantage has been an adequate supply of gas at the points and time required. Our principal difficulty is not in making them load but in making them unload at off-peak hours.

Governors equipped with loaders maintain a constant outlet pressure under all conditions of load. The ordinary weight type of governor, not equipped with a loader and adjusted to a certain pressure at off-peak hours, will drop the outlet pressure from 0.5" to 1.0" at times of heavy demand due to the increased effective area of the main regulator diaphragm when the regulator approaches the wide open position. This is also true, but to a lesser extent, when the inlet pressures are low. This is a very important point and we feel justified in installing loaders if only for this reason.

The adjustment on some of the loaders is quite critical. This, however, may not be the fault of the loader. The orifice plate may not be of the correct size. In making up the specifications for a particular loader, it is very difficult to estimate the maximum load conditions. The orifice plate should be as easily removable as is the plate in an orifice meter. It then becomes a simple matter to select one of correct size.

To summarize, we find that:

- (1) In systems fed by one governor, automatic loaders operate satisfactorily.
- (2) They hold a constant governor outlet pressure under all load conditions.
- (3) Where all governors in a closely connected system are equipped with loaders, certain ones will "hog" the load at off-peak hours.
- (4) Adjustment in some cases is critical.
- (5) Proper size plate orifice is essential.
- (6) Plates should be easily changed.

We plan to do some further experimenting this year with various size orifice plates and also to attempt to solve the off-peak hour problems of making the loaders unload at the proper time. An automatic valve placed in a header at the center point between two unloading governors feeding this governor might solve the problem. This valve, or regu-

lator, would be set to close at 7" and so connected that if pressure in the 12" header on either side of the closed regulator should drop the regulator would open. These and other experiments will be attempted this year, and probably by the time the heavier loads of next winter come we will have some of the answers.

Obituary

EARL V. KESINGER, vice-president of Natural Gas Pipeline Company of America, Chicago, Ill., died May 13.

For many years Mr. Kesinger was active on technical committees of the American Gas Association. He was a member of the Technical and Research Committee of the Natural Gas Department and chairman of the Pipeline Subcommittee. He was instrumental in developing revisions of the American Petroleum Institute Line Pipe Specifications for gas line pipe.

He was the A. G. A. representative on the Engineering Subcommittee of the American Petroleum Institute Committee on Standardization of Oil Country Tubular Goods, and also the A. G. A. representative on the Joint Valve Committee of the Institute.

He was graduated from the Kansas State College as an electrical engineer in 1917 and immediately launched into the oil business. In 1930 he was made chief engineer of the Continental Construction Corporation, which company was organized to design and construct the natural gas pipeline system which brings natural gas from the Panhandle of Texas to Chicago and its environs. In 1942 Mr. Kesinger was elected vice-president of the Natural Gas Pipeline Company of America and Texoma Natural Gas Company and the Quadrangle Gas Company. Later that year he was elected to the board of directors of these companies.

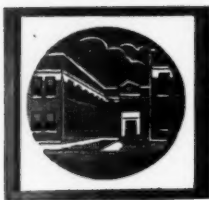
During World War I, Mr. Kesinger served as Lieutenant in the Field Artillery.

ALFRED J. DIESCHER, seventy, engineer, inventor and president of the Diescher Coating Corporation, Bronxville, died May 15.

A native of Pittsburgh, he was the son of Samuel Stephen Diescher, founder of the S. Diescher and Sons Engineering Company, with which he was affiliated for many years. He subsequently managed the Lanyon Zinc Company smelters in Missouri and was one of the principal organizers of the Empire Fuel and Gas Company, of Bartlesville, Okla., a subsidiary of Cities Service Company.

After 1920 he specialized as a consulting engineer and assisted the Texas company in the laying of the first long distance pipe line for transporting natural gas. He developed the Diescher pipe natural gas storage system and invented a coating machine and an applicator bearing his name.

He was a member of numerous societies, including the American Institute of Mining Engineers and the American Petroleum Institute.



Laboratories

GEORGE E. WHITWELL, Chairman

R. M. CONNER, Director

Primary Air Injection Formula Developed

PROVIDING designers and engineers with greater flexibility in solving problems of modern gas burner design, a new primary air injection equation has been developed by engineers of the American Gas Association Testing Laboratories.

The new equation is the result of continued studies on individual elements of burner design affecting atmospheric injection, sponsored by the Committee on Domestic Gas Research. Its derivation and application is presented in Research Bulletin No. 37, Primary Air Injection Characteristics of Atmospheric Gas Burners—Part II, recently published by the Laboratories.

The new bulletin carries forward the research reported in Bulletin No. 26 in which burner design factors affecting injection were analyzed and an empirical relationship formulated for numerous contemporary burners. The new formula extends correlation between injection and design to instances where deviation from conventional design is contemplated and incorporates additional design factors not formerly isolated. A chapter is devoted to the solution of practical problems by use of the equation.

New Data on Solid-Top Hotel Ranges

MANUFACTURERS of approved hotel and restaurant ranges have been furnished a comprehensive report on commercial range top sections by the American Gas Association Testing Laboratories.

The report reviews technical information on metals and alloys used in top sections and presents results of service experiences in the field with comments on possible ways of improving present designs. Advantages and disadvantages of the use of various metals are discussed with graphs and charts employed to show effects of such factors as tensile strength, oxidation, and metal growth.

The investigation was sponsored by the Subcommittee on Approval Requirements for Hotel and Restaurant Ranges with the view of eventually incorporating suitable perform-

ance tests in approval standards to cover solid top sections. Prior to doing so it was desired to give interested manufacturers an opportunity to become acquainted with the valuable information resulting from the study.

Joins Red Cross

MARIE C. PANUSKA, former research assistant at the American Gas Association Testing Laboratories, has arrived in the Philippines to serve the armed forces as an American Red Cross staff assistant. Miss Panuska is a graduate of Miami University and attended the Midland Radio and Television School, Kansas City.

Lt. Colonels McCandless and Leitch Return to Laboratories

ANOTHER chapter in the war services rendered by staff members of the American Gas Association Testing Laboratories has been closed with the return to the Laboratories of Lt. Colonels Bruce A. McCandless and Thomas S. Leitch.

Both entered service as lieutenants in the field artillery in 1941. Colonel McCandless was first associated with the Field Artillery Board of the testing laboratory at Ft. Bragg, N. C. and later with the 4.5 inch gun battalion of the Third Army. Following that



Bruce A. McCandless and Thomas S. Leitch

he commanded a battalion and was personnel officer of the Field Artillery Replacement Training Center at Fort Sill, Oklahoma.

Colonel Leitch entered service with the 9th Division at Ft. Bragg where he worked with new anti-tank weapons and then joined a tank destroyer battalion. Following this he activated new outfits at Camp Bowie and Camp Hood, Texas, after which he went overseas as Plans and Operations Officer of an Amphibious Tractor Battalion from Fort Ord, California. He was then promoted to Commanding Officer. Colonel Leitch served in New Guinea, New Britain, and the Philippines where he engaged in twelve landings.

Properties and Uses of Helium Defined

WITH abundant quantities of helium now available for private enterprise—as much as 10 million cubic feet per month—the peacetime uses of this unique lightweight, nonflammable gas may overshadow its great wartime performance, the Bureau of Mines, sole producer of helium in the world, has indicated in a publication released May 22 by Dr. R. R. Sayers, Director of the Bureau.

Hailed as a new industrial tool, helium in peacetime will continue to alleviate human suffering in the treatment of certain respiratory ailments, assist in the expansion of a number of newly-developed metallurgical processes, serve as a tracer in determining underground migrations in gas and oil reservoirs, minimize explosion dangers in the use of some anesthetics, and when mixed with pure oxygen, reduce or eliminate the painful caisson disease, commonly called "the bends."

The author of the Bureau publication on the properties and uses of helium, Henry P. Wheeler, Jr., petroleum engineer, relates that several additional uses for helium have been suggested, but not thoroughly tested. These include use as an inert atmosphere in metallurgical and other operations; to fill spaces between multiple optical lenses; as a tracer material to determine air movement and the efficiency of air-conditioning systems, and as a chemical raw material.

Complete with a bibliography of more than 900 articles on helium, the paper also lists

13 tables comparing the properties of helium with properties of other gases.

A copy of Information Circular 7334, "The Properties and Uses of Helium," by Henry P. Wheeler, Jr., may be obtained free from the Bureau of Mines, Department of the Interior, Washington 25, D. C.

Engineers Elect Haines

JOHAN E. HAINES, vice-president of Minneapolis-Honeywell Regulator Company, was elected president of the Minnesota Chapter of the American Society of Heating and Ventilating Engineers at the Chapter's annual meeting on May 6. Hartzell C. Mills, Minneapolis Gas Light Company, was elected to treasurer.

To Represent Kemp

ON May 1 the new firm, Genn & Logan, 3959 N. Lincoln Avenue, Chicago 13, Ill., was formed to represent The C. M. Kemp Mfg. Co. of Baltimore, Md., manufacturer of industrial equipment and machinery. Principals of the new firm, Earl Genn and Frederick D. Logan, have both been active in the sales and development end of industrial gas utilization for some years, having formerly been vice-president and chief engineer, respectively, of Gas Appliance Service, Inc., Chicago.

Associated Organization Activities

Indiana Gas Association Meets at French Lick



E. D. Anderson

ED. ANDERSON, vice-president of Northern Indiana Public Service Co., Hammond, Indiana, was elected president of the Indiana Gas Association at the thirty-sixth annual meeting of that organization held May 9-10 at French Lick. Other newly elected officers are:

vice-president—Dean T. Burns, assistant manager, Citizens Gas & Coke Co., Indianapolis; Secretary-treasurer—Clarence W. Goris, division manager, Northern Indiana Public Service Co., Gary. New directors elected for a three-year term are: Louis B. Schiesz, president, Indiana Gas and Water Co., Indianapolis; Edward M. Hahn, president, Kokomo Gas & Fuel Co., Kokomo; and E. G. Peabody, sales manager, Citizens Gas & Coke Co.

The well-rounded program attracted a large audience. Following an address by the retiring president, Herman G. Horstman, director of personnel, Public Service Co. of Indiana, Inc., Indianapolis; H. Carl Wolf, managing director, American Gas Association, presented a discussion on "New Problems—New Opportunities." Hon. Leroy E. Yoder, chairman, Public Service Commission of Indiana, gave a talk on "Trends in Utility Regulation," which was followed by another highly interesting address by Walter C. Beckjord, president, Cincinnati Gas & Electric Co., on "Challenges to the Gas Industry."

At the banquet, held on the evening of the first day's session, Dr. Louis M. Sears, Professor of History, Purdue University, offered a thought-provoking paper on "The Old Diplomacy and the New Bomb."

The Friday morning session opened with "Automatically Yours," a presentation by E. Carl Sorby, vice-president, George D. Roper Corp., Rockford, Illinois, and chairman of the "CP" range group. Mr. Sorby, with his usual showmanship, made a highly effective plea for promotion of automatic

gas cooking or automatic gas ranges built to "CP" specifications. Next on the agenda was Howard Dirks, personnel director, Perfect Circle Co., Hagerstown, Indiana, whose topic was "Looking Ahead in Personnel Relations," which was followed by a stimulating report on "The Gas Business—Its Future," presented by Frank C. Smith, president, Natural Gas Corporation, Houston. The final speaker on the program was F. B. Culley, vice-president, Southern Indiana Gas & Electric Co., Evansville, who gave an able discussion on "What About Us in Indiana?"

Pennsylvania Gas Annual Meeting



F. H. Trembly, Jr.

FRANK H. TREMBLY, Jr., assistant sales manager, The Philadelphia Gas Works Co., was elected president of the Pennsylvania Gas Association at the thirty-eighth annual meeting of that organization held May 21-23 at Galen Hall, Wernersville, Pa. Mr. Trembly in his capacity as first vice-president

had been acting as executive officer of the Pennsylvania association since the death of the president, L. C. Smith of Harrisburg.

Other officers elected at the first session, Tuesday, May 21, are: first vice-president—James M. Huebner, Pennsylvania Power and Light Co., Lancaster; second vice-president—B. V. Pfeiffer, The United Gas Improvement Co., Philadelphia; third vice-president—H. Smyser Bair, York County Gas Co., York, Pa. Re-elected were Secretary William Naile, Lebanon; Treasurer James A. Schultz, Read-

ing; and Managing Director A. B. Millar, Harrisburg.

Feature address at the Tuesday meeting was a stimulating presentation entitled "Competition—An Aid to Progress" by Hudson W. Reed, president, The Philadelphia Gas Works Co., and vice-president, American Gas Association. The A. G. A. was also represented on the program by E. C. Adams, chairman, Advisory Group for Direct Space Heating, who spoke on ventilation problems, and H. Vinton Potter, director, New Freedom Gas Kitchen Bureau, who gave a colorful New Freedom program summary entitled "You Can't Be a Magician Without Rabbits."

An outstanding report on peak and base load gas production was presented by E. G. Boyer, manager, gas department, Philadelphia Electric Company. Lyle C. Harvey, president, Gas Appliance Manufacturers Association, and president, Bryant Heater Co., made a vigorous analysis of gas company-manufacturer relationships, and J. G. Bennett, Caloric Gas Stove Works, spoke on single-point ignition.

Other speakers and their topics included: H. H. Ganser, regional vice-president, Philadelphia Electric Co., "Manufactured Gas Regulations in Pennsylvania"; Harold P. Mills, Metropolitan Life Insurance Co., "Reserve Pension Plans"; Curtis T. Atkisson, Ebasco Services, Inc., "Review of Accounting Developments"; and Dr. Alfred J. Cardall, formerly with John B. Stetson Co., "Collective Bargaining."

William P. Kelgard, humorist, entertained the delegates at the banquet on Wednesday evening.

Florida-Georgia Convention Held

AT the eleventh annual convention of the Florida-Georgia Gas Meters Association, held May 10-11, in Savannah, Georgia, the following officers were elected: president—B. G. Duncan, vice-president, South Atlantic Gas Co., Orlando, Florida; vice-president—W. H. Duguid, vice-president, Jacksonville Gas Corp.; secretary-treasurer—J. W. Owen, manager and secretary-treasurer, Central Florida Gas Corp., Winter Haven, Florida.

There were 175 registered delegates, bringing the total attendance higher than any previous convention held by this Association. Following an opening address by the past-president of the Association, W. H. Duguid, an invocation was given by Dr. F. Bland Tucker, after which the Mayor of Savannah, Hon. Peter Roe Nugent, delivered an address of welcome.

Feature of the Friday morning session was the presentation of the Servel New Freedom Kitchen, previously described in the March MONTHLY. F. W. Williams, American Gas Association, gave a timely address at the Friday luncheon meeting, "Take Off Those Rose-Colored Glasses," which dwelled on the sales prospects when the sellers market is no longer in existence and we have to meet strong competitive threats.

G. A. M. A. Annual Meeting, June 11-12

ASTRONG program has been arranged for the annual meeting of the Gas Appliance Manufacturers Association which takes place Tuesday and Wednesday, June 11 and 12, at the Drake Hotel, Chicago. General sessions will be held each morning at 10 A.M., followed by luncheons. The afternoon will be devoted to meetings of the following products divisions: Thermostatic Control and Accessories, Gas Water Heater, and Gas House Heating and Air Conditioning.

Speakers at the general sessions include officers of the national associations and other industry leaders. Lyle C. Harvey, G.A.M.A. president, will preside.

In the afternoon session, J. E. Drew, American Gas Association, speaking on "A. G. A. Promotion—Postwar Model," which showed how A. G. A. is planning to provide promotional aid necessary to capture the postwar market. Alfred T. Pitman, president, Pitman Manufacturing Co., Atlanta, Georgia, in his presentation, "Commercial Gas Cooking," stressed how gas companies should cooperate fully with educational institutions, restaurants, and hotel associations, to keep gas in the limelight.

W. R. Steinwedell, president, The Gas Machinery Co., Cleveland, Ohio, presented a paper at the Saturday morning session, "Gas Manufacturing in the Future," which proved interesting and constructive. Several of the speakers were unable to attend the convention due to the unforeseen threat of the railroad strike.

H. Hansell Hillyer, president, South Atlantic Gas Co., was toastmaster at a banquet held in the General Oglethorpe Hotel, which was the final event of the two-day highly successful convention.

House Heating Council Elects Cook



James E. Cook

JAMES E. COOK, manager of the house heating division of the Westchester Lighting Company, Mt. Vernon, N. Y., was elected chairman of the Metropolitan Gas House Heating and Air Conditioning Sales Council at the annual meeting of that organization held in Somerville, N. J., May 15.

Other officers elected by the council include: Lewis G. Paulding, Long Island Lighting Co., Mineola, vice-chairman; and Henry A. Diekmann, The Brooklyn Union Gas Co., Brooklyn, N. Y., secretary-treasurer.

The council is composed of house heating and sales managers from twenty-two gas utility companies in the New York metropolitan area who meet monthly to keep abreast of technical developments and promote the use of gas house heating and air conditioning equipment. This group developed and published the widely used Gasco Installation Guide, containing recommended practices for installation of gas winter air conditioning equipment in new homes. It also published a Code of Minimum Requirements for Gas Winter Air Conditioning Systems.

The new chairman, Mr. Cook, has been associated with Westchester Lighting Co. for the past 11 years. Previously he was employed by the Petroleum Heat and Power Co., in White Plains. He is an honorary member of the American Institute of Architects, Westchester Chapter; and also is a member of the American Gas Association and the Home Builders Association of Westchester.

Wisconsin Association Elects Miller

BE. MILLER, secretary, Wisconsin Power and Light Co., was elected president of the Wisconsin Utilities Association in the annual mail ballot of the membership. Mr. Miller succeeds M. H. Montross who becomes chairman of the Association's Advisory Committee.

E. C. Brenner, chief engineer, Milwaukee Gas Light Co., was named vice-president and Alfred Gruhl, research engineer, Wisconsin Electric Power Co., was re-elected treasurer.

The new officers took office at the beginning of the fiscal year on May 1. An installation dinner was held at the Milwaukee Athletic Club on May 24.

Canada Natural Gas Annual Convention

METHODS of solving the problems created for the natural gas industry in southwestern Ontario by increased demands and declining reserves formed the dominant theme of the papers and discussions at the 20th annual convention of the Natural Gas and Petroleum Association of Canada, held at Windsor on May 22 and 23.

The gathering marked the resumption of regular annual conventions after the interruptions resulting from the depression and war years. Though the conventions were temporarily suspended much work was done by the association directors, which was reviewed by Vice-President S. B. Severson of Buffalo, who presided in the absence of Major E. Sweet, the president. Reports were also presented by Herb Durgey for the committee on allocation of short-wave radio air-wave bands and by C. M. Sieger for the committee on specifications for orifice gas meters.

At the morning session on May 23, George H. Smith, director, Natural Gas Department, American Gas Association, briefly reviewed the gas industry program of that organization. H. D. Valentine, sales promotion manager, The People's Gas, Light & Coke Co., Chicago, gave an inspiring address on "The Paradox of Modernism." Two papers were read, one on "Underground Storage of Gas" by Gary Skeels, assistant to the vice-president of the Dominion Natural Gas Co., Buffalo, and the other on "Peak Load Auxiliary Gas" by C. George Segeler, engineer of utilization, American Gas Association. Both papers were followed by keen discussion.

The afternoon questionnaire, conducted by Mr. Severson, dealt with leakage problems at wells and in gathering lines, and the proper care of wells to secure the best production. A report was also presented by C. M. Sieger for the committee on standardization of appliances.

Officers elected for the year 1946-47 were:

President emeritus, C. E. Steele, Port Colborne; honorary president, Major E. Sweet, Brantford; president, S. A. Morse, Chatham; first vice-president, S. B. Severson, Buffalo; second vice-president, C. N. Glenny, Fort

Erie; treasurer, J. A. Richie, Buffalo; secretary, Jos. McKee, Hamilton; directors, Messrs. Steele, Severson, Richie, Morse and Glenny with J. B. McNary, Hamilton; Gordon D. Wickett, Windsor; Geo. H. Smith, Port Colborne; J. A. McNevin K. C. and Col. T. Weir, Chatham.

E. C. Steele, chairman of the memorial committee, paid tribute to members who had passed on since the last previous convention, and especially to those who gave their lives in World War II.

Following the afternoon session, members were shown a technicolor and sound film depicting the construction of the 1,260-mile East Tennessee pipe line which brought Texas gas to the war industries of the east.

At the annual banquet, held on Thursday evening in the Prince Edward Hotel, an enjoyable program of musical and other entertainment was provided, with Dusty Miller of Wilmington, Ohio, as guest speaker. At the conclusion, the toastmaster, Vice-President Severson, introduced the new president, S. A. Morse.

Association Activities Discussed at Meeting

IN one of the first meetings of its kind, executives of three regional gas associations met at A. G. A. headquarters in New York, May 13, with members of the American Gas Association staff to coordinate the activities of the national and regional groups. Participating were Clifford Johnstone, managing director, Pacific Coast Gas Association; Robert R. Suttle, managing director, Southern Gas Association; Clark Belden, executive secretary, New England Gas Association; H. Carl Wolf, managing director, American Gas Association, and various members of the A. G. A. staff.

The entire field of relations of the national and regional associations was canvassed with a view to preventing duplication of activities and improving coordination among these organizations.

Wants "A. G. A. Monthly"

THE Belgian Gas Association would like to complete its file of back issues of the A. G. A. MONTHLY and will welcome hearing from anyone who has spare copies of the January 1933 or November 1940 issues. Communications should be addressed to R. H. Touwaide, Association Des Gaziers Belges, 17, Rue de Londres, Bruxelles, Belgium.

C. E. D. Elects Wolf

HCARL WOLF, managing director of the American Gas Association, has been elected a trustee of the Committee for Economic Development, of which Paul G. Hoffman is chairman. This committee, composed of business leaders throughout the country, has rendered outstanding public service in setting economic and social objectives for the postwar period.

Personal and Otherwise

Director of Sales For Washington Gas



Roger A. Gordon

ROGER A. GORDON has been appointed director of sales for the Washington Gas Light Company and its nearby Maryland and Virginia subsidiary companies, it is announced by Vice-President and General Manager Everett J. Boothby. In his new position, Mr. Gordon assumes responsibility

for the general direction and supervision of all residential, commercial, industrial and government sales activities.

Mr. Gordon's appointment to his new post climaxes a career of thirty years in the public utilities industry, during which time he has held key positions in both gas and electric companies of Illinois, Iowa, Michigan, Kentucky and Rhode Island. He joined the Washington Gas Light Company in an executive sales capacity seven years ago.

Associated with Mr. Gordon in the system-wide sales organization which he now heads is General Sales Manager A. J. Maloney, recently returned from military service, who continues in charge of residential sales activities, and Manager of Utilization Leon Ourusoff, who continues in charge of commercial, industrial and government sales activities.

Joins Houston Natural's Production Department

GRUSSELL SPARENBERG became associated with Houston Natural Gas Corporation on April 8 as a geologist in the company's fast-growing production department. He will assist Hillard W. Carey, production engineer, with the mapping of wells, preparation of technical reports and indexing of geological data pertaining to gas fields in the Texas Gulf Coast area.

Immediately prior to his employment with Houston Natural, Mr. Sparenberg was a lieu-

tenant in the navy. During his years of service from October, 1942, to January, 1946, he was cited for meritorious achievement during the Normandy invasion and also participated in the invasion of Leyte.

Since 1932, Mr. Sparenberg's wide background of experience has included employment as a geologist for oil companies in Venezuela, Tulsa and Houston.

Bell Gets New Post In Portland Gas



James F. Bell

and as Lieutenant was radar officer aboard the destroyer *Stormes* in the Pacific. A Stanford University graduate in civil engineering in 1932, he took post-graduate work at the University of Munich. Later he spent two years at Harvard and M. I. T. on a national research council project.

In 1939 he joined the research division of the Consolidated Gas, Electric Light & Power Company of Baltimore. He remained there until 1942 when the War Production Board sent him to Brazil as chief engineer.

Cited for War Work



J. A. Krug, Secretary of the Interior, with William R. Boyd, Jr., chairman of the Petroleum Industry War Council, who was awarded the Medal for Merit, highest civilian decoration, on May 8. Mr. Boyd was cited for his work in directing the natural gas and petroleum industries participation in the Petroleum Industries War Council, called "the greatest government-industry partnership in the history of the United States." Many of the natural gas industry's top-ranking executives served on the council

Advanced to Vice-Presidency



R. W. McClenahan

that time working on special assignments for the company.

AMERICAN Meter Company has announced the election of Col. R. W. McClenahan as a vice-president of the company, effective April 17.

Col. McClenahan returned to the company after his discharge from the U. S. Army Air Forces in November 1945. He has been active since

Arkansas Louisiana Co. Vice-President



J. C. Hamilton

He has been head of the rate and valuation department and assistant secretary of the Arkansas Louisiana Gas Co., for a number of years, and has been with the organization for the past 27 years.

He is well known throughout the utilities industry as an authority on natural gas rates and valuations and has appeared before many state and national rate and valuation hearings.

Publicity Manager At Philadelphia

RC. COX was appointed manager of the newly-created Publicity Department of the Philadelphia Electric Co., effective May 1.

Mr. Cox has been a member of the Public Relations Department since 1931. He went to the Philadelphia Electric Co., from the United Gas Improvement Co., in 1929, and in 1930 was named correspondence adviser. In 1938 he joined the staff of *Current News*, the company's magazine, as associate editor, and was named editor in 1941. He continued in that position until January 1, 1945, when he relinquished the editorship of *Current News* in order to devote his entire time to assignments in the Public Relations Department. His headquarters will continue at 1000 Chestnut Street.

Promotion Manager At Standard Gas



Robert E. Laffin

title of advertising manager, after his recent release from Army service. While in uniform he was engaged in general staff intelligence work and was awarded the Bronze Star Medal for service preceding and during the Leyte Island campaign.

THE appointment of Robert E. Laffin to the post of advertising and sales promotion manager of Standard Gas Equipment Corporation of Baltimore, Maryland, is announced by H. C. Erhard, vice-president in charge of sales.

Mr. Laffin rejoins the Standard Gas organization, with whom he formerly held the

Elected a Director

ESHELDON STEWART has been elected a director of The Connecticut Light and Power Company and Mr. Stewart is a partner in the firm of Stewart and Shearer, New York City, and is a director and secretary and treasurer of The Griswold Company, also of New York.

Ramsay Joins National

DAVID M. RAMSAY recently was appointed manager of the industrial division of the National Radiator Company of Johnstown, Pennsylvania, according to an announcement by Robert S. Waters, president. The industrial division manufactures process equipment for the chemical and petroleum industries. Mr. Ramsay has been with National Radiator Company for five years, having been a field engineer in the Boston office, assistant manager of the Industrial Division, and assistant to the manager of the heating division in charge of specialty sales.

Sets Long-Time Gas Association Record

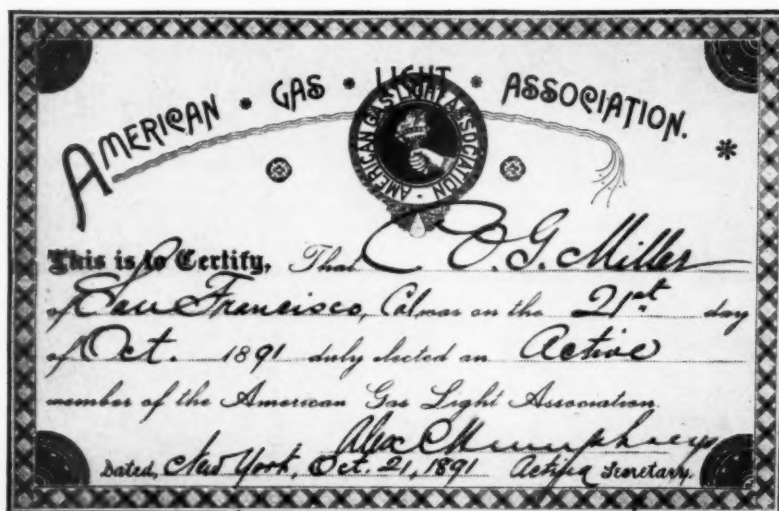
ARECORD for "oldtimers" to shoot at is that of C. O. G. Miller, chairman of the board of Pacific Lighting Corp., who is now in his 63rd year of active service in the gas industry. As the certificate below shows, Mr. Miller is probably the oldest living member of the American Gas Association or one of its predecessor organizations.

Mr. Miller's first attachment to the gas industry goes back to 1883, when he entered the employ of the United Gas Improvement Co., in San Francisco. In December, 1886, he was elected treasurer of the Pacific Gas Improvement Co., serving in that position until 1900, when he was elected president. In August, 1886, Mr. Miller and W. B. Cline formed the Pacific Lighting Co., the predecessor of Pacific Lighting Corp., and he has been an officer

ever since. The Pacific Lighting System now serves more than 1,145,000 customers.

He was president of the Pacific Coast Gas Association in 1908, and vice-president of the American Gas Association in 1924.

"Who's Who in America," lists Mr. Miller as having been president of the Pacific Gas Improvement Co., 1900-03; president of San Francisco-Oakland Railroad Terminals, 1917-24; trustee and chairman, finance committee, Stanford University; director and chairman of the Executive Committee, American Trust Co., Kennedy Mine, Firemen's Fund Insurance Co., Pacific Gas and Electric Co., and many other corporations. He was also in charge of the San Francisco office of War Trade Board during the first world war period.



Gild Honors Bartlett



Presentation of a jeweled watch, replica of the Gild emblem, highlighted a dinner honoring C. Edwin Bartlett, Past Mayor of the Gild of Ancient Suppliers (Pictured above). Some 30 members gathered May 17 at the Meridian Club, Philadelphia, Pa., and letters and telegrams of congratulation were received from a score more. Mr. Bartlett is president of Bartlett & Co., Ruid water heater distributors in that city.

P. J. France Appointed

ROBERTS & MANDER CORPORATION, Hatboro, Penn., has announced the appointment of Paul J. France as district sales representative for Western Pennsylvania. Mr. France will also handle gas range sales in adjoining sections of West Virginia and Ohio.

Appointed Appliance Sales Manager



Lt. Col. Hall

LIEUTENANT COLONEL HERBERT L. HALL of Somerset, Mass. has been appointed appliance sales manager of the Hartford Gas Company. He is now on terminal leave from the Army Air Forces, Headquarters Air Technical Service Command.

Prior to his enlistment in March, 1942,

he was merchandise sales manager for the Fall River Gas Co. He was a member of the Fall River Chamber of Commerce and the New England Gas Association.

Lt. Colonel Hall has a successful merchandising background and in 1940 was awarded a trip to Miami and Nassau for an outstanding sales record of gas refrigerators in the Fall River area.

Col. Rockwell Elected

COLONEL W. F. ROCKWELL, board chairman and president of Rockwell Manufacturing Company, Pittsburgh, has been elected to the board of directors of United Engineering and Foundry Company, Pittsburgh, Pa. United Engineering manufactures heavy duty machinery used by the steel industry.

Elected Trustees

C. L. CAMPBELL, president, The Connecticut Light and Power Co., and Ralph H. Tapscott, president, Consolidated Edison Co. of New York, Inc., were among those elected trustees of the National Industrial Conference Board at that organization's thirtieth annual meeting, held at the Waldorf-Astoria Hotel in New York last month. They will serve a three-year term. Virgil Jordan was re-elected president.

"CP" IS YOUR BABY

(Continued from page 281)

If you cannot afford it, trim your sales plans down to what you can afford to spend. Don't try to bite off more than you can chew and jeopardize your entire program by setting goals too high and budgets too low. When you have decided on how much money you can afford and what you can do with that amount of money, then organize your entire company behind your efforts.

And last but not least, stick to your guns. One swallow never made a summer. One sprint never made a race horse. Plan your program on a 3 to 5 year basis, and give your first year's results an opportunity to snowball themselves into your second and third year's operations, and to help you pick up the momentum you need.

And then, take advantage of the tremendous assets you have in the "CP" program and of all the man-power and promotion material that is available to you.

All we can do for you is to help you make the snowballs, and start them rolling down hill. It's up to you to steer them as they gain momentum, so they can produce for you the greatest return in new revenue per dollar invested.

The "CP" program is the soundest idea in major appliance history. It's the greatest profit opportunity your dealers ever had and the greatest load-building and new sales-getting tool you have to increase your net revenue.

Back of these automatic gas ranges built to "CP" standards are the best known and most profitable brand names in the gas range business.

Put the "CP" program to work for you. And remember, that every "CP" manufacturer is ready and waiting to help you.

It's your baby—adopt it, cherish it, nourish it, and it will grow in your community and take its rightful place as your strong right arm, helping you to build your revenues the way you want to build them.

TRENDS IN INDUSTRIAL RELATIONS

(Continued from page 260)

tional Labor Relations Act.

Much thought and discussion has been devoted by industrial leaders to the problem of finding some means to more nearly equalize the powers of labor and management in collective bargain-negotiations.

Only yesterday I heard a clear thinker and an excellent speaker advance what to me seems to be a constructive approach to the problem.

In substance it was as follows:

"Let an aroused and informed public opinion demand that the Congress of the United States, once more responsive to the broad public interest as opposed to that of an organized minority, take immediate steps which shall be as follows:

1. Revise the Wagner Act, preserving all of labor's equitable rights of organizing for collective bargaining but balancing every unfair labor practice for which the employer is held responsible by an equally weighted practice for which Organized Labor must assume responsibility.

2. Enact such legislation as may be needed to rescind all of Organized Labor's immunities and special privileges under all laws of the land, not excluding anti-monopoly measures, tax laws and all other laws which apply to business corporations."

I subscribe to the premise that thoughtful labor, non-oppressed by monopolistic unions, as well as all other Americans of good will, cannot fail to support this understandable program. Wise labor leaders will support such a program if only to avoid the penalties of inevitable repressive and reactionary labor legislation.

Each of us could make a substantial contribution to the nation as well as to our industry if we would apply our minds and efforts to the task of furthering such a program.

But in any event it is vitally important that every employer sees to it that his house is in order. Those of us who fail to realize the significance of the current developments in the industrial relations' field may soon find that it is too late.

BUILDING THE COMMERCIAL MARKET

(Continued from page 285)

employ, in the aggregate a large sales force, they are well entrenched, they sell a great variety of merchandise and, by-and-large, they

represent a more potent sales factor than the commercial department of a gas company. Because these dealers are *small in number* we can cooperate with them *closely*. Because they represent a greater merchandising force than we do, we must make them our allies, not our competitors. Therefore our utmost efforts should be directed toward close, friendly and systematic dealer relations.

I would like to mention a few of the activities that will tend to strengthen our ties with the dealers:

Assign a man to full-time work with them, Loan them young men, periodically, for training,

Lend your engineers to assist in their installation problems,

Supply a draftsman when good layout presentation is important,

Maintain periodical relations between your supervisors and management of dealer establishments.

Arrange dealer parties, where they meet other members of the trade, professional men and municipal authorities.

So much for promotion. Now let me sum what I have attempted to convey:

The great VALUE of the commercial load, The contemporary PROBLEMS facing us market-wide and

The necessity of ADJUSTING our sales methods TO NEW CONDITIONS.

At this point you have a perfect right to question the practical aspects of the ideas I have been propounding; for instance, they may sound extravagant to you. To this the answer is: study your own sales expense. You may find, I think, in a majority of cases that by far less promotional dollars are spent per unit of commercial gas than of domestic gas. And the same goes for appliance servicing expense.

I am glad to say that your Food Service Equipment Committee has undertaken this year to analyze and to report on commercial sales policies and procedures of several outstanding gas companies. Industry, therefore, will soon have comprehensive information much broader in scope than the few thoughts and illustrations just presented to you.

I would like to conclude this talk by reminding you again that:

We have the markets! Our product, is unsurpassed! We need more powerful promotional machinery to build sales and prestige!

KITCHEN CENTER OPENS

(Continued from page 262)

fulness with clever use of color, decorations and light.

A group of members of the Copy Committee of the American Gas Association visited Rochester and were given special demonstrations in each of the ventilated kitchens. Among committee personnel attending were Newell E. Loomis, Michigan Consolidated Gas Company of Detroit; W. L. Hutcheson, Manufacturers Gas Company, Pittsburgh; Kathleen Carscadden, Public Service of N. J., Newark; J. J. Quinn,

Boston Consolidated Gas Co., chairman of the committee; Gussie Jones, Atlanta Gas Light Company; Arthur P. Kelly, Rochester Gas & Electric, and William Hewson, Brooklyn Union Gas Company. Others present were Albert F. Tegen, president and Edward Morehouse, vice-president, General Public Utilities; John West, Edward Drew and H. Vinton Potter of the American Gas Association; R. M. Alderman, Noel Mallaby and Stephen Bell of McCann-Erickson; Fred Lauer and Charles W. Kimball of Cribben & Sexton, Chicago.

At a luncheon following the demonstration the speakers included Vice-President Alexander M. Beebe of Rochester Gas and Electric; Chairman Quinn of the Copy Committee and Messrs. Tegen and Morehouse of General Public Utilities.

The Rochester Kitchen Center and its ventilated kitchens have received considerable national publicity, including a special illustrated story in *This Week Magazine*, entitled "Packaged Ventilation." Other magazines are also planning to carry descriptive articles. As the result of publicity to date, requests have been received from all over the country for further information on the matter of kitchen ventilation. Rochester Gas and Electric has organized an Architects' and Builders' Bureau to provide an advisory service, under the direction of Lawrence Fridley and even since the kitchen center was opened the staff has been deluged with requests for suggestions and ideas.

ACCENTING TEACHER RELATIONS

(Continued from page 263)

this "bird's-eye view of what's in the current magazines."

Miniature model kitchens were displayed and kitchen planning slides—part of the New Freedom Gas Kitchen program—were shown.

The Betty Newton radio broadcasts—including a 5-minute daily presentation over 7 Ohio stations, and a 15-minute junior cook program on Saturday mornings—were illustrated by playing sample transcriptions.

To promote the kitchen planning idea, teachers were invited to take their classes to the Home Service Centers of the gas company, for the students to learn about the New Freedom Kitchen. Also the offer was made to take the

Home Service Center equipment to any school for a demonstration.

The teachers were informed about the gas company's policy on selling gas equipment for the home-making laboratories.

Reviewing the dinners, Mrs. Wells said that they permitted the home service advisers to meet the teachers in a social way, on the teachers' own time; to acquaint the teachers with all the educational materials and facilities the gas company provides, and to show the teachers how the Home Service Department can be of real assistance to them in their work.

Many teachers were interested in the information on possibilities which home service offers a qualified girl as a career, and indicated they would encourage more of their better students to prepare for such work.

Appointments were made by home service advisers, through the teachers, to appear before classes and other groups. Numerous speaking engagements, particularly before P. T. A. organizations, also resulted later.

"We are very happy about the success of the dinners," Mrs. Wells said. "They are time-savers, permitting us to meet many teachers in enjoyable association in one evening, and to tell our full story."

The teachers? They were elated! At each dinner there was the same amazement among them—they just had no idea the gas company offered so many services and facilities to be helpful to them. At each dinner they gave a vote of thanks to the Betty Newtons, and asked that the events be held annually.

GASOLINE FROM NATURAL GAS

(Continued from page 257)

transportation is inherently more expensive than the transportation of crude oil. Secondly, gas must always be transported by gas pipe lines and not by tankers or tank cars. Therefore its mobility is limited. Thirdly, the effect which the actuality of cheap oxygen will have upon manufactured gas costs will tend to limit the competitive value of natural gas for pipe lines. Nevertheless, gas prices will go up. It is not unlikely that, in the localities I have just mentioned, gas at the well head will be worth 10-12 cents within the next decade.

This increase in gas price will affect

various pipe line companies differently. Those producing more gas than they buy will benefit. Those buying more than they produce may suffer temporarily. I use the word "temporarily," for once natural gas is competitive with crude oil as a source of gasoline, a price floor is established for gas to pipe lines. I should think that any rate-making body would logically base its calculations upon this competitive and possibly posted price of natural gas, rather than upon the present assumption that a gas well is an integral part of a pipe line system. If gas rates are raised in step with the competitive price set by the price of crude, then with an increasing gas price, the pipe line companies, at worst, will suffer only until the corresponding rate adjustments are made. In any event, it would seem wise for the pipe line companies to endeavor to secure adequate gas holdings and reserves.

Oxygen Limits Gas Price

I have said that cheap oxygen will tend to limit the price of natural gas in such localities as Kansas and Texas. You will recall that the Germans completely gasified "Braunkohle" continuously, successfully and economically. It appears that improvements, comparable in magnitude to those made in the Fischer-Tropsch process, can be made in the gasification of coal.

It has long been the ambition of the manufactured gas industry to produce city gas directly from coal and oxygen. Compared with the present intermittent methods, the direct gasification process would be more thermally efficient, would eliminate the use of expensive gas oil and could be continuous. Hydrocarbon Research, Inc. has such a process in an advanced stage of development. A small pilot plant has been built and successfully operated in which both coking and non-coking coals are distilled and partially gasified with oxygen. The gas as run from the pilot plant has had calorific values higher than required for city gas. Freed of carbon dioxide, the heating value of the gas has varied from 580 to 900 B.t.u. per cubic foot according to extent of gasification of the coal.

Based upon these preliminary data and again applying advanced oil refinery techniques to the process design, "guesstimates" have been made which indicate that in such localities as New

York, city gas can be made from bituminous coal at a cost less than the cost of natural gas purchased at the wells in Texas for 5 cents per 1000 cubic feet and transported to the east coast by pipe line. Also, the estimated cost of gas by the direct gasification process is much lower than the present cost of gas manufactured by the larger utility companies.

Make Gas at Coal Mouth?

These studies posed the further question, "Why haul coal to New York and then gasify it?" "Why not gasify it at the mine mouth?" Hence, a careful, thorough, and intensive survey was made of all German processes. These were evaluated in the light of the data gathered from Hydrocarbon's own experimental work. Then a hypothetical plant was designed. From this preliminary work, it appears certain that eventually a process will be developed whereby either coking or non-coking bituminous or anthracite coal can be completely gasified, yielding a pipe line gas of approximately 1000 B.t.u. heating value. These preliminary studies further indicate that the net thermal efficiency—i.e., the ratio of the heating value of the product to the heating value of the coal, including all coal used as fuel—will be about 80%. In other words, it is to be expected that one ton of 13,000 B.t.u./lb. coal will yield 20,000 cubic feet of synthetic natural gas.

Hydrocarbon Research is presently building a semi-commercial plant to produce directly, continuously and with oxygen both "city gas" and "pipe line" gas. It is hoped the plant will be in operation this year and that quantitative design data will be available next year. Our expectations for the process are based in part upon the data gathered during the course of development of the Hydrocol process, and if they are realized, one can visualize gas pipe line companies serving the north and the northeast manufacturing "synthetic" natural gas from coal mined in West Virginia, Illinois and Pennsylvania. Obviously, this development of the direct gasification process will tend to place a ceiling on the price of natural gas.

We have now seen how the Hydrocol process is likely to affect both the price of crude oil and the price of natural

gas, placing a ceiling over the former and raising the latter. We have also seen how the development of a direct gasification process will tend to place a ceiling over the price of both natural gas and manufactured gas. A further factor to be reckoned with in our future economy is the approaching coal-to-gasoline process. An economic process for transforming coal into gasoline will put a ceiling over the price of crude oil even more effectively than the Hydrocol process. Also, it may well increase the value of some of our low grade coal deposits. However, the amount of coal required to satisfy our entire gasoline market will always be small in comparison to the coal used for other purposes, and so the effect on the country's coal economy as a whole can never be great.

I said "approaching coal-to-gasoline

process," for we are now well on our way to gasifying coal cheaply, and the combination of the direct gasification process and the Hydrocol process is the coal-to-gasoline process. In fact, on the basis of figures now available, 6-cent gasoline from \$2.00 per ton coal is not more than two or three years off.

In summary, the successful development of the processes just reviewed will (1) assure this country of an adequate supply of cheap gasoline, city gas and petroleum products for centuries to come; (2) make available cheap oxygen for use in the chemical and metallurgical industries as well as in the gasoline and gas industries; and (3) provide cheap raw materials, particularly carbon monoxide, hydrogen and oxygenated hydrocarbons, to serve as the basis of a great new synthetic chemicals industry.



GAS COMPANIES*

Colorado-Wyoming Gas Co., Denver, Colorado (W. L. Thackrey, President)
Greeley Gas & Fuel Co., Denver, Colorado (B. E. Jack, Vice-President)
Kansas-Colorado Utilities Inc., Lamar, Colorado (R. E. McGee, President)
The Peoples Gas Light & Coke Co., Chicago, Ill. (George F. Mitchell, President)
Superior Gas Corp., Greenville, South Carolina (J. B. Heafer, Jr., President)
Wisconsin Fuel & Light Co., Manitowoc, Wisconsin (W. J. O'Donnell, Vice-President)

ASSOCIATE COMPANIES*

Jenkins Publications, Los Angeles, Calif. (Jay Jenkins, President)

MANUFACTURER COMPANIES*

Ajax Boiler & Heater Co., Los Angeles, Calif. (H. N. Espey, General Manager)
American Furnace Co., St. Louis, Missouri (C. S. Franke, President)

* Names in parentheses are Company Delegates of the American Gas Association.

Barnes Manufacturing Co., Cleveland, Ohio (W. G. Barnes, Manager)
Beck Engineering Combustion Co., St. Louis, Mo. (V. S. Beck)
Bendix Home Appliances, Inc., South Bend, Indiana (A. R. Constantine, Vice-President)
Berger Furnace Mfg. Co., Pittsburgh, Pa. (Davis Berger)
The Briggs Filtration Co., Bethesda, Maryland (W. J. Ewbank, Chemical Research Engineer)
A. W. Cash Valve Mfg. Corp., Decatur, Illinois (D. E. Madden, Secretary-Treasurer)
Columbia Water Heater Corp., Downey, Calif. (Eric Slater, President)
Continental Instrument Co., Cleveland, Ohio (H. Friedberg, Secretary)
Economo Gas Products Co., Detroit, Michigan (William White, Owner)
Farquhar Furnace Co., The, Wilmington, Delaware (C. L. Sapp, Secretary)
Harrison Engineering Corp., Detroit, Michigan (C. G. Soper, Vice-President)
C. A. Hayward Mfg. Co., Algonac, Michigan (C. A. Hayward, Owner)
Heating Research Co., Butler, Pennsylvania (W. L. Sarver, General Manager)
Heckethorn Mfg. & Supply Co., Littleton, Colorado (D. D. Faller, Manager)
Hot Boy Inc., Cleveland, Ohio (A. W. Conley, Vice-President & General Manager)
Hutchinson Burner & Mfg. Co., Hutchinson, Kansas (J. R. Pattinson, Owner & Engineer)
Jackson Gas Burner Co., Detroit, Michigan (Jas. H. Jackson, President)
Industrial Heaters, Inc., Los Angeles, Calif. (Theodore Thiele, General Manager)
Martin Stamping & Stove Co., Huntsville, Alabama (Frederick H. Martin)
Modern Controls Corp., Detroit, Michigan (Richard L. Buysse, President)

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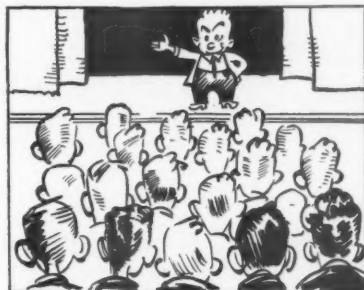
Mor-Heat Mfg. Co., Los Angeles, Calif. (L. O. Morin, Owner)
 Morris A. Elliott Co., Baltimore, Md. (R. R. Gridley, Vice-President)
 Nesbitt & Meidenbauer, Lancaster, New York (D. S. Nesbitt, Sales Manager)
 Norwalk Valve Co., South Norwalk, Conn. (John Hammond, Vice-President & General Manager)
 Research Products Corp., Madison, Wisconsin (M. H. Kliefoth, Treasurer)
 S & S Heating Co., Detroit, Michigan (J. E. Silverson, Partner)
 The A. P. Smith Mfg. Co., East Orange, N. J. (G. J. Manahan, General Sales Manager)
 Southern Aircraft Co., Garland, Texas (Willis C. Brown, President)
 Stacey Mfg. Co., The, Cincinnati, Ohio (Edw. J. Baechle, Vice-President)
 Stewart-Warner Corp.—South Wind Div., Indianapolis, Ind. (A. R. Collins, Chief Engineer)
 J. E. Van Tuyl & Associates, Cleveland, Ohio (J. E. Van Tuyl, Owner)

INDIVIDUAL MEMBERS

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 Monroe C. Alves, Union Electric Co. of Missouri, St. Louis, Mo.
 H. Stuart Auvil, U. S. Bureau of Mines, University, Alabama
 Alexander G. Bailey, The Petroleum & Nat. Gas Conservation Bd., Calgary, Alberta
 Max W. Ball, Denver, Colorado
 Cameron C. Barr, Consolidated Gas Elec. Lt. & Power Co. of Baltimore, Baltimore, Md.
 Thomas H. Bartholomew, Koppers Co., Inc., Tar & Chemical Div., Pittsburgh, Pa.
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 Sanford A. Berg, The Peoples Gas Light & Coke Co., Chicago, Ill.
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 Oscar A. Bowen, The Peoples Gas Light & Coke Co., Chicago, Ill.
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 Charles J. Bresee, Jr., The Texas Co., Cut Bank, Montana
 Robert M. Brigham, Springfield Gas Light Co., Springfield, Mass.
 Stephen C. Brophy, The Peoples Gas Light & Coke Co., Chicago, Ill.
 Betty Brown, The Tappan Stove Co., Mansfield, Ohio
 R. C. Brown, Western Kentucky Gas Co., Madisonville, Ky.
 Geo. E. Browning, Pacific Gas & Electric Co., San Francisco, Calif.
 James L. Bugg, Western Kentucky Gas Co., Owensboro, Ky.
 Robert Callow, Pacific Gas & Electric Co., San Francisco, Calif.
 Earl R. Cameron, Jr., Cameron Oil & Gas Co., Charleston, W. Va.
 Ernest G. Campbell, The Peoples Gas Light & Coke Co., Chicago, Ill.
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Gas Engineer, General Superintendent or Superintendent of Distribution, Central America or West Indies preferred. Graduate Engineer. Two years previous residence Latin America. Four years gas distribution and manufacture large eastern utility company. One and one half traveling engineer machinery manufacturing company. Highest references. Speak some Spanish. Ex-Army Captain. 34. 1520.

Factory or Sales Executive, qualified by background of engineering, sales and administration for position of responsibility seeks new connection. In early forties, Annapolis graduate. Good personality and diplomatic with ability to get things done. Would make good assistant to top executive. Married. 1521.

Expert Store and Heating Salesman—Services now available. Years of experience contacting wholesale and retail trade and utilities in all eastern and southern territories. Capable of serving as Sales Manager—Specialty Man—Conducting Promotion Campaigns—Directing Distributors and Agencies selling forces. 1522.

Manufacturer's Representative—located New York metropolitan area, desires several non-competing industrial gas equipment items. Excellent nationwide contacts with the Can manufacturers, Baking and other industries. Broad experience gas combustion. Licensed Professional Engineer. Sales Commission Basis. 1523.

POSITIONS OPEN

Florida gas company has position open for a Superintendent of Appliance Service and Installation department. Rapidly expanding concern with good opportunity for advancement. Give complete information including age, education, experience and salary expected. 0456.

Chemical Engineer for Gas Department Division

of combination company. Applicant should be under 30 with qualifications for the field of gas manufacture, distribution and utilization. He would start in the gas plant learning all phases of production. Opportunity after several years would be production foreman and later a position of broader responsibility in distributing, sales and utilization of gas. Start at \$200 a \$250. per month depending on qualifications and experience. 0457.

A progressive expanding gas company located in the Puget Sound country of the Northwest, has openings in the Engineering Department for men with the following qualifications. All must be Graduate Engineers under 45 years of age:

Distribution Engineer

With five years actual experience in Gas Distribution and Transmission Design. To assist Chief Engineer in development and expansion of transmission lines, feeders and distribution grid. Conduct Pressure Survey and work out Distribution Maintenance Schedules.

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To keep up distribution main maps, extensions and retirements. Keep monthly and annual main records. Set up new detailed main plats using data from field books and work with Distribution Engineer.

Mechanical or Civil Engineer (recent graduate)

To start as Draftsman to work on both production and distribution engineering problems. Man of cadet caliber to learn engineering department functions. Work to include field contact.

Write giving full details as to age, education, experience and availability. 0460.

Gas Range Engineer. Midwestern manufacturer requires the services of a man with good technical education and experience in product design, combustion, and A. G. A. testing procedures. Write fully, giving experience, salary expected and date available. Include photo if available. 0461.

Laboratory Test Engineer. Midwestern manufacturer requires the services of a man with good technical education and experience in gas and electric range laboratory testing and development work. Write fully, giving experience, salary expected and date available. Include photo if available. 0462.

Superintendent of service with thorough knowledge of servicing commercial gas burning equipment. National organization with locations in principal cities. Permanent. Give complete information including salary expected. 0463.

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